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SIXTEENTH BIENNIAL REPORT

Being the Forty-seventh and Forty-eighth
Annual Reports of the

STATE BOARD OF HEALTH

STATE OF KANSAS

THE LIBRARY OF THE
JAN 25 1933
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July 1, 1930, to June 30, 1932

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B. P. WALKER, STATE PRINTER
TOPEKA 1932
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James C. Hofmann, M. S., Bacteriologist	Topeka.
C. L. Miller, M. D., State Registrar of Vital Statistics	Topeka.

* Deceased. November 24, 1931.

† Appointed to fill unexpired term of C. A. McGuire, M. D.

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LETTER OF TRANSMITTAL.

OFFICE OF SECRETARY, STATE BOARD OF HEALTH,
TOPEKA, KAN., August 15, 1932.

To the Honorable Harry H. Woodring, Governor:

SIR—I have the honor to submit herewith the sixteenth biennial report, or the forty-seventh and forty-eighth reports, of the Kansas State Board of Health, which covers the period from July 1, 1930, to June 30, 1932, in compliance with the state law.

Respectfully submitted,

EARLE G. BROWN, M. D.,
Secretary and Executive Officer.

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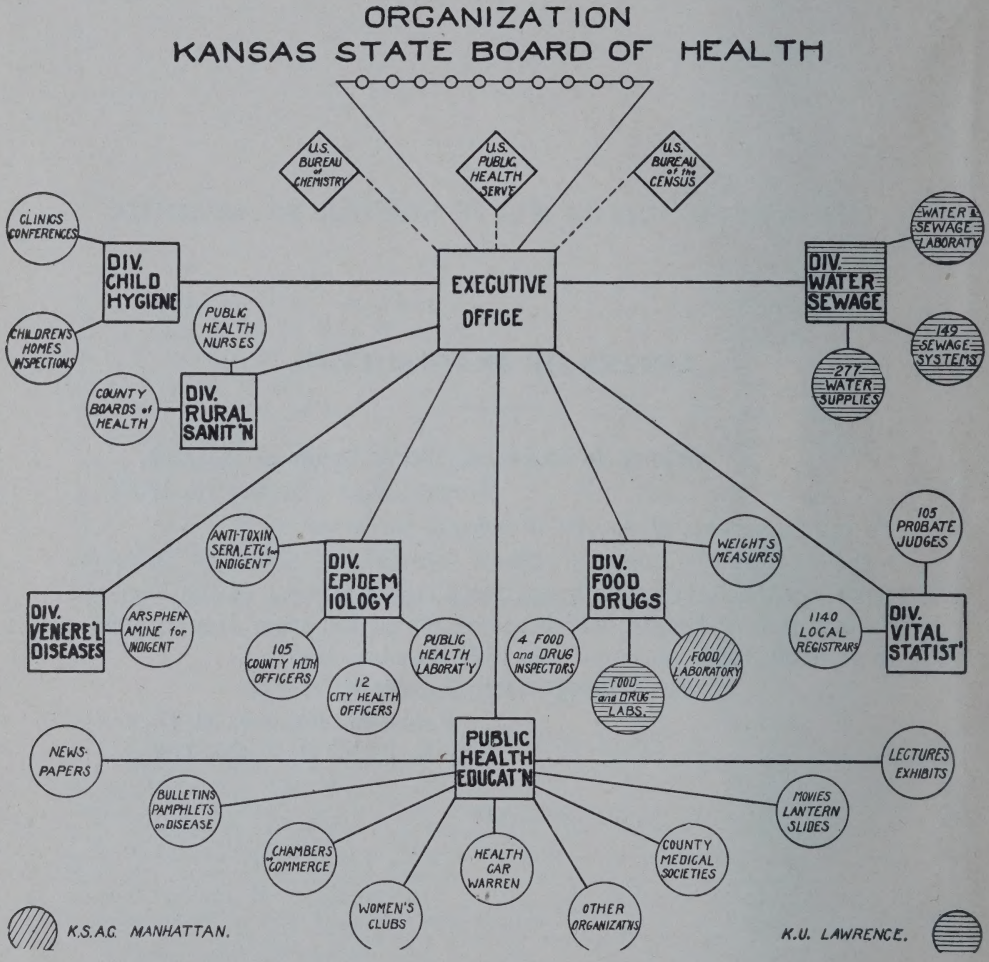

COÖPERATING ORGANIZATIONS.

1. Children's Bureau, U. S. Department of Labor.
2. Rockefeller Foundation.
3. American Red Cross.
4. Kansas Tuberculosis and Health Association.
5. Kansas Public Health Association.
6. Kansas Mental Hygiene Society.

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CLARENCE A. McGUIRE, M. D.

CLARENCE A. McGUIRE, M. D.

Dr. Clarence A. McGuire, president of the State Board of Health and prominent Topeka physician, died at his home in Topeka, November 24, 1931. He was sixty-nine years of age.

Doctor McGuire was born in Kewanee, Ill., February 24, 1862; graduated from Rush Medical College in 1884, and established his office in Topeka the same year. He had practiced in Topeka continuously for forty-seven years, and in recent years had given special attention to diseases of the heart.

He was one of the founders of Stormont hospital; for years a trustee, and at the time of his death, president of the hospital staff. During the years the Kansas Medical College was located in Topeka, Doctor McGuire was a valued member of the faculty. He was consulting physician for the Santa Fe hospital; former president of the A. T. & S. F. Railway Medical and Surgical Society; a member of the Shawnee County and Kansas Medical Societies and of the American Medical Association. Doctor McGuire was elected and served as president of the Kansas Medical Society in 1897-'98. He was appointed as a member of the State Board of Health by Gov. Ben S. Paulen in 1925; reappointed in 1928, and only the week before his death had received his third commission from Gov. Harry H. Woodring. He had served continuously as president of the Board since his election in 1925.

Doctor McGuire received injuries in an automobile accident during the early part of August and was a patient in Stormont hospital for several weeks following. A short time after his return home, he developed an acute respiratory infection which aggravated a chronic heart condition and was the immediate cause of death.

Funeral services were held at the First Congregational church, Rev. Charles M. Sheldon in charge, assisted by Rev. Charles L. Atkins.

He was married in 1887 to Clara B. Eddy, who died a few years ago. Their only child died in infancy.

"He was a man, take him for all in all,
We shall not look upon his like again."

Sixteenth Biennial Report of the Kansas State Board of Health.

To the Governor, Members of the Kansas State Board of Health, and Citizens of Kansas, Greeting:

In this, the sixteenth biennial report of the Kansas State Board of Health, will be found detailed reports of the various divisions. As shown by these reports, much has been accomplished during the past two years in furthering the principles of preventive medicine and in health promotion among the people of Kansas.

New appointments to membership on the Board included: C. M. Jenney, M.D., Salina; C. L. Hooper, M.D., Dodge City; and J. L. Lattimore, M.D., Topeka, replacing the following-named members: A. J. Anderson, M.D., Lawrence; C. A. McGuire, M.D. (deceased), Topeka; and W. J. Eilerts, M.D., Wichita.

W. J. Davies, state registrar of vital statistics for a period of approximately ten years, died on January 23, 1932. C. L. Miller, M.D., of Eureka, was named to fill the vacancy, effective March 25, 1932.

Earnest Boyce, chief engineer, received through the Rockefeller Foundation a fellowship at Harvard University during the school year 1931-'32. Following completion of his year of study, Mr. Boyce was awarded a master's degree. During the absence of Mr. Boyce, R. E. Lawrence, assistant engineer, was named as acting chief engineer, and Allen Wymore was designated as assistant engineer.

DIVISION OF COMMUNICABLE DISEASES.

Acute Anterior Poliomyelitis. The most serious epidemic of acute poliomyelitis in the history of the state prevailed during the summer of 1930, when 696 cases and 64 deaths were reported. A summary of 500 case histories will be found on succeeding pages of this report.

Typhoid Fever. New low records were established in both the number of cases, 256, and deaths, 41, reported in 1931. The previous low number of cases, 303, was reported in 1929 and the previous low number of deaths, 45, in 1928.

Diphtheria. The low record number, 655, of diphtheria cases since 1905, was reported in 1913 and the second low, 696, in 1930. However, due to increase in the population, the case rate for 1930, 36.8 per 100,000 population, was less than that of 1913. Approximately twice as many cases were reported in 1931 as in the previous year; yet only one more death was reported in the past year, the total of deaths being 67 and 68, for 1930 and 1931, respectively.

New low records were established in 1931, in the number of deaths from both whooping cough and scarlet fever.

A detailed report of the work of the Division of Communicable Diseases will be made by the epidemiologist.

HENRIETTA BROWN TUBERCULOSIS RESEARCH.

Valuable studies into the cause and prevention of tuberculosis have been made in the past four years through the Henrietta Brown Tuberculosis Research, through the examination of 11,473 school children in Harper, Crawford and Harvey counties.

A summary of the work will follow the report of the Division of Communicable Diseases.

DIVISION OF VENEREAL DISEASES.

Sharp decreases were recorded in each of the years 1930 and 1931 in reported cases of syphilis and gonorrhea. During the two-year period there were reported 1,394 cases of gonorrhea and 1,691 cases of syphilis, as compared with 1,911 cases of gonorrhea and 2,124 cases of syphilis for the years 1928 and 1929.

Four clinics are maintained in the state for the treatment of indigent cases of syphilis and gonorrhea. The total of patients admitted to these clinics for the biennium ending June 30, 1932, was 2,553—1,207 for gonorrhea and 1,346 for syphilis, and the total of treatments, 42,834 and 40,690, respectively.

The statistical report of this division will be included in the report of the Division of Communicable Diseases.

PUBLIC HEALTH LABORATORY.

The biennium which closed June 30, 1932, recorded a more than 35 per cent increase in the total of examinations made during the previous biennium. The total of examinations made for the fiscal year of 1932 was 60,289; 50,363 for the year ending June 30, 1931.

The director of the laboratory in his report has called attention to the necessity of providing additional equipment, and also the need for adequate quarters.

A detailed report of the activities of the work of the public health laboratory will be given by Mr. Hofmann.

DIVISION OF CHILD HYGIENE.

The lowest number of infant deaths, 1,590, was reported in 1931. Consequently the lowest infant mortality rate, 47.9, was reported in this year. Provisional returns by the Bureau of the Census show only three states in 1931 had lower infant mortality rates than the state of Kansas.

A detailed report of the activities of the division will be made by the director.

DIVISION OF COÖPERATIVE COUNTY HEALTH WORK.

At the close of the fiscal year 1932, ten counties were operating full-time health departments. These counties had a total population in excess of 216,000, or 11.4 per cent of the total state population.

A detailed report will be given by the director.

DIVISION OF FOODS AND DRUGS.

The total of inspections by the traveling food and drug inspectors for the biennium was 25,164, as compared with 19,513 for the previous biennium; an increase of more than 28 per cent. The total of towns visited was 1,740, as

compared with 1,361 for the biennium ending June 30, 1930, an increase of more than 27 per cent. This increased amount of work was made possible through the action of the 1931 legislature in providing automobiles for transportation of the inspectors.

A detailed report of the work of the division will be made by the assistant chief food and drug inspector. A report of the work of the food and drug laboratories is also included.

DIVISION OF SANITATION.

Two special investigations have been conducted by this division in the past biennium: a study of the occurrence of mottled enamel and the investigation of water-sterilization equipment in hospital operating rooms.

A detailed report of the work of the division will be given by the chief engineer.

DIVISION OF VITAL STATISTICS.

The year 1931 recorded a new low birth rate for the state and the second lowest death rate. The death rate per 1,000 population was 9.9 in 1931, as compared with 9.7 in 1924. No serious epidemics of acute respiratory infections occurred in either of the two years.

A detailed report of the work of the Division of Vital Statistics will be made by the registrar.

UNDULANT FEVER.

Undulant fever is an acute infectious disease which has three predominating symptoms: (1) general feeling of weakness, especially in the afternoon, and accompanied by headache or general aching; (2) fever, which is usually preceded by chills or chilly sensations followed by a hot stage, and (3) excessive sweating.

The first cases of undulant fever in Kansas were reported in March, 1927, although the onset of each had occurred prior to January 1, 1927; consequently the cases were charged to the year 1926. In 1927, 14 cases were reported; in 1928, 85; in 1930, 99, and in 1931, 64. The total of cases reported from January 1, 1932, to June 30, 1932, brings the grand total to 301. The distribution of 267 cases classified as to the source of infection, *i. e.,* rural or urban, is shown in Figure 1.

Infection may occur at any season of the year. The disease, however, is apparently contracted more frequently during the warm months, as more than 45 per cent of the Kansas cases gave a history of having contracted the disease during the months of July to September, inclusive.

According to Hardy: "The factors which determine the transmission of a particular disease from animal to man are dependent, in different localities, on (1) the incidence of the infection among animals, and (2) the degree of man's exposure, either direct or indirect. Variations in the habits and occupations, and occupations of the people and their relation to animal industries, provide different contacts. A recent study divides the source of infection into three groups: (1) those without significant exposure to live stock or carcasses (mostly urban cases); (2) rural cases having direct contact with live stock; and (3) urban cases having direct contact with live stock or carcasses. These were designated as the milk, farm, and meat groups, respectively. The source

of infection of 257 of the Kansas cases was determined as: (1) milk, 172, or 67.4 per cent; (2) farm, 75, or 29.4 per cent, and meat, 8 cases or 3.1 per cent.

"Undulant fever has been described as a 'disease of long duration characterized clinically by continued fever, profuse perspiration, constipation, frequent relapses, rheumatic or neuralgic pains, swelling of joints or orchitis; bacteriologically by the presence in the blood of organisms of *Micrococcus melitensis* (now *Brucella melitensis*); anatomically by congestion of the spleen

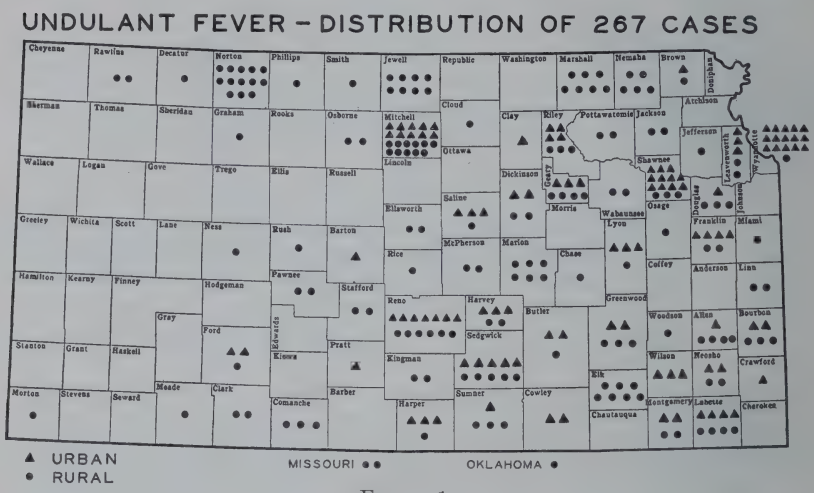

FIGURE 1.

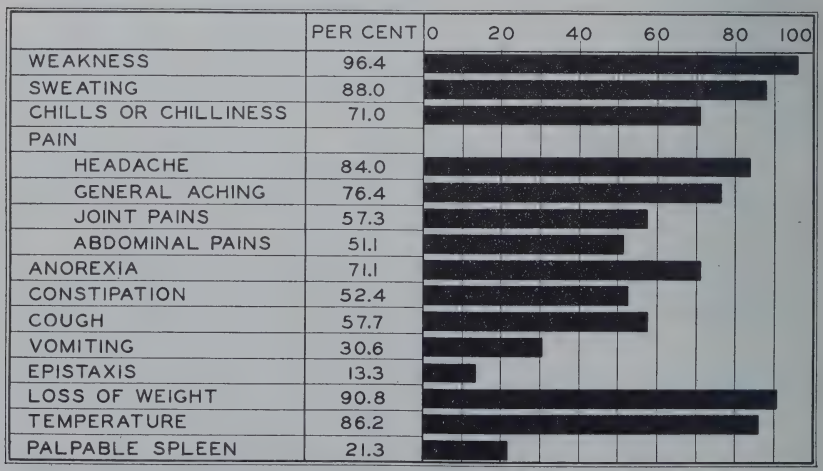

FIGURE 2.

and other organs.' Patients are rarely dangerously ill, and the disease results in comparatively few deaths. The outlook for the patient is usually good as far as life is concerned, but no one can tell how long the disease will continue—it may last for a few months to a few years."

The principal symptoms and signs of 225 of the Kansas cases are shown in Figure 2.

INFANT MORTALITY.

In 20 years the infant mortality rate in Kansas has been reduced from 73.7 per 1,000 live births to a new low record of 47.9 in 1931. This decrease well demonstrates the results of preventive medicine in the saving of infant lives. According to provisional returns by the Bureau of the Census for 1931, only 3

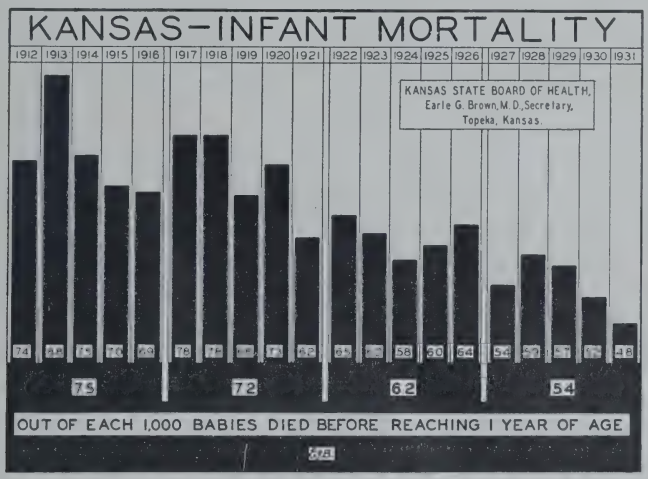
KANSAS—INFANT MORTALITY
1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931
KANSAS STATE BOARD OF HEALTH,
Earle G. Brown, M.D., Secretary,
Topeka, Kansas.
75
72
62
54
OUT OF EACH 1,000 BABIES DIED BEFORE REACHING 1 YEAR OF AGE

FIGURE 3.

states in the registration area had lower rates than Kansas, as follows: Iowa, 40.4; Oregon, 44.1, and Washington, 47.7.

Before it is possible to make further reductions in the infant mortality rate, careful consideration must be given to the causes which in 1931 resulted in 1,586 deaths. The leading causes were diseases of early infancy, the respiratory diseases, congenital malformations, diarrhea and enteritis and the communicable diseases.

In "diseases of early infancy" are included: premature birth, injury at birth, congenital debility and other diseases of early infancy. The great majority of the deaths from this cause occur within a few weeks after birth. In 1914, 46.5 per cent of all infant deaths were charged to this cause; 59.7 per cent in 1931.

Next in importance as a cause are the respiratory diseases. Deaths from these diseases, bronchitis, pneumonia (all forms), and influenza comprised 18.4 per cent of the total infant deaths in 1931; 11.7 per cent in 1914. The proportion of deaths charged to respiratory diseases fluctuates from year to year and demonstrates no advances have been made in the control of this particular group.

In 1931, 13.8 per cent of infant deaths were attributed to congenital malformations as compared with 6.6 per cent in 1914.

Material reductions have been made in the number of deaths from diarrhea and enteritis. The record number of deaths from this cause reported in the past 18 years was 444, or 19.6 per cent in 1914, as compared with the low record of 118, or 7.4 per cent in 1931. The decreases in deaths from diarrhea and enteritis are largely indicative of the results of the educational program in the value of using pure water and milk supplies.

Communicable diseases were responsible for 60 infant deaths in 1931 as compared with 203 in 1914. In each of the years, whooping cough was the greatest single factor, 100 deaths resulting from this disease in 1914; 17 in 1931. There is opportunity for further reductions in the deaths in the communicable-disease group. If the total of 178 deaths from these diseases and diarrhea and enteritis had been eliminated, the infant mortality rate for 1931 would have been 42.5 instead of 47.9.

The annual infant mortality rates since 1912, with the average for each of the five-year periods, are shown in Figure 3.

PRINCIPAL CAUSES OF DEATH BY AGE GROUPS.

Life in Kansas for the child under 10 was nearly twice as safe in 1931 as in 1922. In the past year only 11.5 per cent of deaths were reported in this age group as compared with 19.7 per cent a decade ago. For those under 1 year the reduction amounted to 4.7 per cent; the hazards were exactly cut in two for those from 1 to 4, while the decrease in the 5 to 9 age group was less than 1 per cent.

The seven principal causes of death in the 1 to 4 age group in 1922, and in order of importance were: pneumonia, diarrhea and enteritis, diphtheria, accidents, influenza, whooping cough and tuberculosis. In 1931 six of these hazards, although their positions had changed, were again principal causes, but whooping cough had been replaced by appendicitis. The seven principal causes in 1931 in order were: accidents, diarrhea and enteritis, pneumonia, influenza, diphtheria, appendicitis and tuberculosis. In each of the two years the seven principal causes accounted for two-thirds of all the deaths in the so-called "toddler age."

Sharp reductions occurred in 1931 in five of the six causes; the greatest decrease, 400 per cent, occurred in deaths from diphtheria; pneumonia was next with a decrease of 185 per cent; diarrhea and enteritis deaths recorded a fall of 106 per cent, and influenza and tuberculosis deaths showed decreases of 46 and 22 per cent, respectively. Some of these gains, including those from diphtheria and diarrhea and enteritis, must be considered as permanent. Accidents, on the other hand, in 1931 showed a 21 per cent increase and assumed first rank as the cause of death in those children over 1 year but under 5.

In 1922, for children between 5 and 9 years the seven principal causes of mortality included: diphtheria, accidents, appendicitis, pneumonia, diarrhea and enteritis, whooping cough and tuberculosis. The first four causes in 1931 were the same as in 1922, except the position of diphtheria and accidents was reversed. In fifth, sixth and seventh places were influenza, chronic heart disease and scarlet fever, respectively. Diphtheria deaths, however, had decreased 177 per cent in the ten years; accidental deaths, although ranking

first, had decreased 130 per cent, while pneumonia and appendicitis deaths had each decreased 65 and 35 per cent, respectively.

In 1931, for the entire group over 1 and under 10, accidents were the first cause of death, closely followed by pneumonia, diarrhea and enteritis, diphtheria and influenza. Two of the diseases in this group, diphtheria and diarrhea and enteritis, are preventable—the one by immunization and the other through judicious attention to the diet, in respect to the kind and quality of food and its preparation. The practice of approved safety rules will decrease the number of deaths attributable to accidents, while personal and community hygiene will favorably influence the development of cases of influenza and pneumonia.

In each of the years from 10 to 39, accidents were the primary cause of death and assumed especially high proportions in those from 15 to 19; in this group the automobile was responsible for the greatest number from any one accidental cause. Although accidents were one of the principal causes in all age groups, they occurred with decreasing frequency in those of more mature age.

Comparatively few deaths from the so-called "children's diseases" occurred after age 15. Pneumonia, and infectious disease and communicable, continued as one of the principal causes after age 15. The influence of the "degenerative diseases" namely, chronic heart disease, Bright's disease and apoplexy, was noted especially after age 50.

A comparison of the ten principal causes of death in 1931 by age groups appears in Figure 4.

ACCIDENTAL DEATHS.

The total of accidental deaths reported in Kansas in 1931 was 1,488, or 7.6 per cent of the 18,648 deaths from all causes. Approximately one death in each fourteen was accidental, making that classification rank fifth among the principal causes, and exceeded only by deaths from chronic heart disease, cancer, Bright's disease and apoplexy. Certain data in regard to accidental deaths follow:

Year.	Total deaths.	Total of accidental deaths.	Per cent of accidental deaths.	Death rate per 100,000 population.
1931	18,648	1,488	7.6	78.8
1930	19,583	1,628	8.3	86.5
1929	19,450	1,503	7.7	81.1
1928	20,917	1,382	6.6	75.1
1927	18,596	1,345	7.2	73.1
1926	19,198	1,220	6.3	66.9
1925	18,694	1,164	6.2	64.2
1924	17,863	995	5.5	54.2
1923	19,872	1,193	6.0	65.3
1922	18,930	1,119	5.9	61.9
1921	18,244	1,025	5.6	57.1
1920	20,306	1,136	5.5	63.8
1919	19,247	1,125	5.8	63.9
1918	26,508	1,131	4.2	65.2
1917	20,880	1,175	5.6	67.6
1916	20,005	1,122	5.6	65.4
1915	17,961	967	5.3	57.8
1914	17,497	965	5.5	57.7

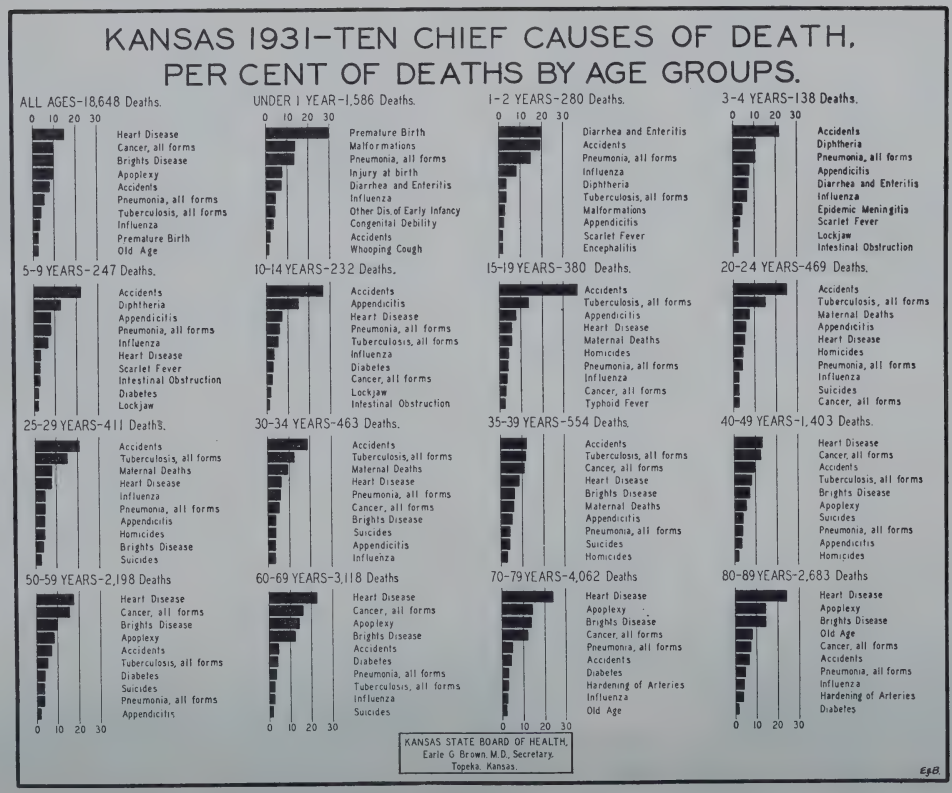
KANSAS 1931—TEN CHIEF CAUSES OF DEATH,
PER CENT OF DEATHS BY AGE GROUPS.
ALL AGES—18,648 Deaths.
0 10 20 30
Heart Disease
Cancer, all forms
Brights Disease
Apoplexy
Accidents
Pneumonia, all forms
Tuberculosis, all forms
Influenza
Premature Birth
Old Age
UNDER 1 YEAR—1,586 Deaths.
0 10 20 30
Premature Birth
Malformations
Pneumonia, all forms
Injury at birth
Diarrhea and Enteritis
Influenza
Other Dis. of Early Infancy
Congenital Debility
Accidents
Whooping Cough
1-2 YEARS—280 Deaths.
0 10 20 30
Diarrhea and Enteritis
Accidents
Pneumonia, all forms
Influenza
Diphtheria
Tuberculosis, all forms
Malformations
Appendicitis
Scarlet Fever
Encephalitis
3-4 YEARS—138 Deaths.
0 10 20 30
Accidents
Diphtheria
Pneumonia, all forms
Appendicitis
Diarrhea and Enteritis
Influenza
Epidemic Meningitis
Scarlet Fever
Lockjaw
Intestinal Obstruction
5-9 YEARS—247 Deaths.
Accidents
Diphtheria
Appendicitis
Pneumonia, all forms
Influenza
Heart Disease
Scarlet Fever
Intestinal Obstruction
Diabetes
Lockjaw
10-14 YEARS—232 Deaths.
Accidents
Appendicitis
Heart Disease
Pneumonia, all forms
Tuberculosis, all forms
Influenza
Diabetes
Cancer, all forms
Lockjaw
Intestinal Obstruction
15-19 YEARS—380 Deaths.
Accidents
Tuberculosis, all forms
Appendicitis
Heart Disease
Maternal Deaths
Homicides
Pneumonia, all forms
Influenza
Cancer, all forms
Typhoid Fever
20-24 YEARS—469 Deaths.
Accidents
Tuberculosis, all forms
Maternal Deaths
Appendicitis
Heart Disease
Homicides
Pneumonia, all forms
Influenza
Suicides
Cancer, all forms
25-29 YEARS—411 Deaths.
Accidents
Tuberculosis, all forms
Maternal Deaths
Heart Disease
Influenza
Pneumonia, all forms
Appendicitis
Homicides
Brights Disease
Suicides
30-34 YEARS—463 Deaths.
Accidents
Tuberculosis, all forms
Maternal Deaths
Heart Disease
Pneumonia, all forms
Cancer, all forms
Brights Disease
Suicides
Appendicitis
Influenza
35-39 YEARS—554 Deaths.
Accidents
Tuberculosis, all forms
Cancer, all forms
Heart Disease
Brights Disease
Maternal Deaths
Appendicitis
Pneumonia, all forms
Suicides
Homicides
40-49 YEARS—1,403 Deaths.
Heart Disease
Cancer, all forms
Accidents
Tuberculosis, all forms
Brights Disease
Apoplexy
Suicides
Pneumonia, all forms
Appendicitis
Homicides
50-59 YEARS—2,198 Deaths
Heart Disease
Cancer, all forms
Brights Disease
Apoplexy
Accidents
Tuberculosis, all forms
Diabetes
Suicides
Pneumonia, all forms
Appendicitis
0 10 20 30
60-69 YEARS—3,118 Deaths
Heart Disease
Cancer, all forms
Apoplexy
Brights Disease
Accidents
Diabetes
Pneumonia, all forms
Tuberculosis, all forms
Influenza
Suicides
0 10 20 30
70-79 YEARS—4,062 Deaths
Heart Disease
Apoplexy
Brights Disease
Cancer, all forms
Pneumonia, all forms
Accidents
Diabetes
Hardening of Arteries
Influenza
Old Age
0 10 20 30
80-89 YEARS—2,683 Deaths
Heart Disease
Apoplexy
Brights Disease
Old Age
Cancer, all forms
Accidents
Pneumonia, all forms
Influenza
Hardening of Arteries
Diabetes
0 10 20 30
KANSAS STATE BOARD OF HEALTH,
Earle G. Brown, M.D., Secretary.
Topeka, Kansas.
E&B

FIGURE 4.

New high records were established in deaths from accidental falls and excessive heat, while a new low record was made in the number of deaths from injuries by animals; the total of deaths from accidental electrical shock was the same as the previous low record, 15, established in 1925.

Season had a noticeable effect on certain types of accidents. The highest number of deaths from automobile accidents was reported in August. November and December recorded the highest number of deaths from gunshot wounds; 85 per cent of the 75 heat strokes resulting in death occurred in June or July, and 59 of the 76 deaths from accidental drowning occurred during the months of May to August, inclusive. The highest total of deaths from accidental burns for any one month, 11, was recorded in March. However, the average number of deaths occurring as the result of accidental burns received during the months of April to August, inclusive, was 4.6, while for the remaining months the average was 7.6.

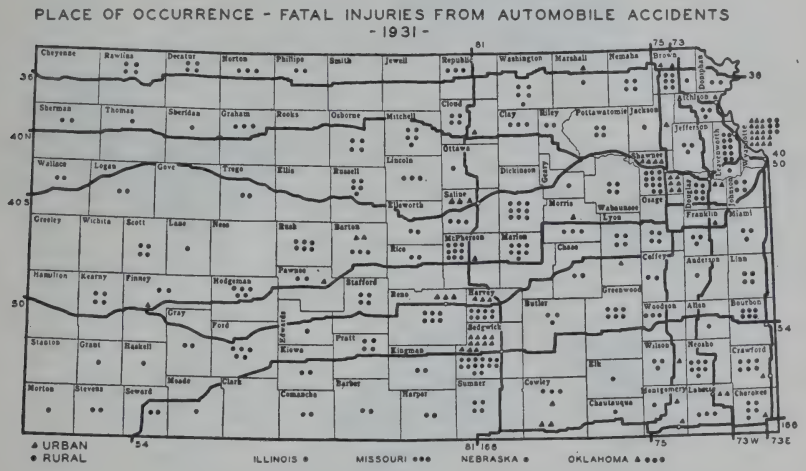

FIGURE 5.

Automobiles were the greatest single factor as to the cause of accidental death, 410 fatalities being charged to this cause. Accidental falls ranked second with 326, and railroad accidents third with 122. Fifty-one of the deaths charged to railroad accidents were the result of the collision of a railroad train and automobile. In fourth place as a principal cause, with 76 deaths each, were accidental burns and drowning, while excessive heat with 75 fatalities was sixth.

The total of deaths in 1931 from automobile accidents was fifty less than the high record established in 1930. The 410 persons who were killed received their fatal injuries in 388 accidents involving 505 motor-drawn vehicles. Automobile accidents occur most frequently in rural areas. Of the 410 deaths, 336 persons or 81.9 per cent received their fatal injury in cities under 2,500 or in the country. Certain data in regard to the occurrence of automobile-accident deaths are shown in Figures 5, 6 and 7, respectively.

Deaths among males predominated in a proportion of slightly more than two for each female death. Approximately three deaths of males occurred in automobile accidents for each female death. All the deaths from crushing in landslides, hunger and thirst, excessive cold, accidental electrical shock, mine and quarry accidents, elevator accidents, street-car accidents and air-transportation accidents were of males, a total of 79.

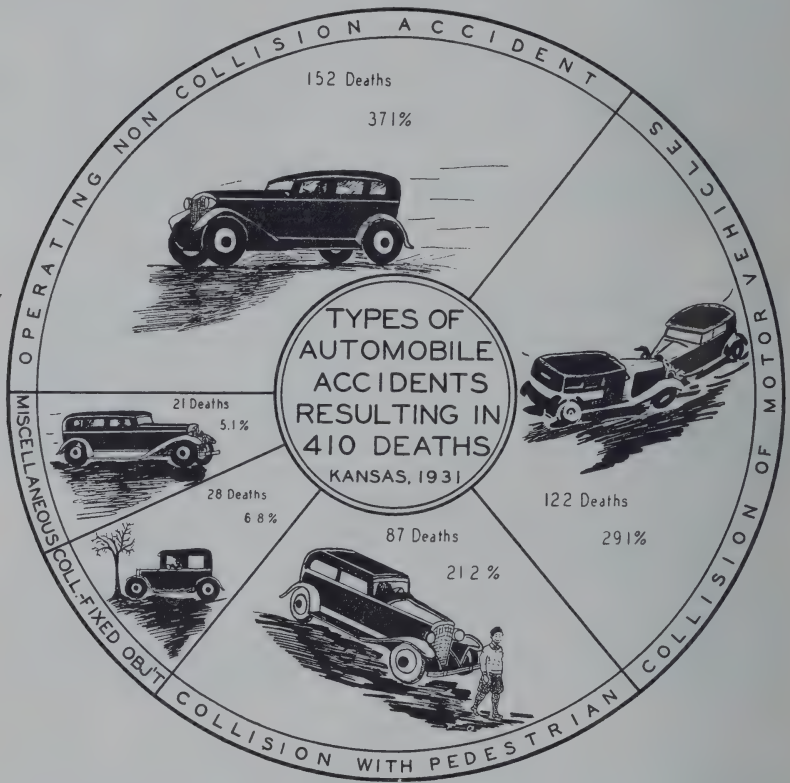

FIGURE 6.

Accidental deaths are generally classified in four groups: industrial, home, motor vehicle and public (exclusive of motor vehicle). The total of deaths, 509, arising from home accidents was the highest of any of the groups; motor vehicle accidents ranked second with 470; public totaled 282, and industrial 227. Of the total of fatal home accidents, 262 were the result of accidental falls; 82 followed burns or scalds; 49 were the result of accidental poisoning with food or some kind of chemical or drug; 18 the result of accidental gunshot wounds; 13 from asphyxiation and 85 from all other causes. The total of 95 deaths from accidents involving farm machinery was the highest for any one cause in the industrial group. This total, however, was a decrease of 30 deaths from this cause in 1930. Deaths resulting from transportation accidents or accidents involving public utilities totaled 33; construction accidents caused

12 deaths, while other extractive industry accidents or accidents involving manufacturing establishments resulted in 11 deaths each.

Of the 1,488 accidental deaths, 114 or 7.6 per cent occurred in the age group under 5 years; 451 or 30.3 per cent were over 64 years of age. Skull fracture was the immediate cause of 288 deaths. There were 716 persons who lived a total of 40,182 days from the time of the injury until the day of death, an average of 56.1 days. Nonfatal injuries were received by 507 persons.

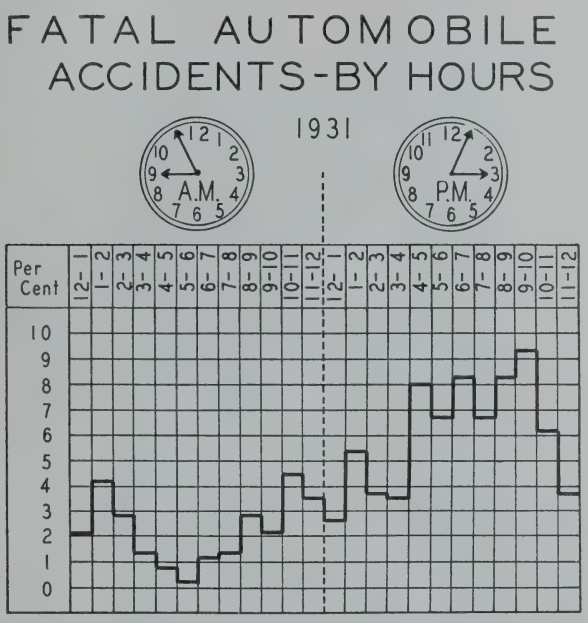

FIGURE 7.

ANNUAL SCHOOL FOR HEALTH OFFICERS AND PUBLIC HEALTH NURSES.

The twentieth and twenty-first annual schools for health officers and public-health nurses were held during the biennium. The attendance at each school was in excess of 150. These schools, which in reality were post-graduate courses in public health, were made possible through the coöperation of the United States Public Health Service and the various voluntary health agencies.

Guest speakers in 1931 included: Taliferro Clark, M. D., assistant surgeon general, U. S. Public Health Service, Washington, D. C.; Mrs. Violet Hodgson, R. N., National Tuberculosis Association, New York; R. L. Russell, M. D., and Mr. Ross Laybourn, both of the Missouri State Board of Health at Jefferson City. In 1932: A. J. McLaughlin, M. D., medical director district No. 3, U. S. Public Health Service, Chicago, Ill.; Wm. F. King, M. D., secretary Indiana State Board of Health, Indianapolis, Ind.; F. L. Rector, M. D., Chicago, Ill., field representative, American Society for the Control of Cancer; Rosamond Losh, executive secretary, the Children's Bureau, Kansas City, Mo., and Robina Kneebone, R. N., supervisor of health, Kansas City, Mo., schools.

HEALTH POSTER CONTEST.

The State Board of Health, each year since 1927, has sponsored a health-poster contest for high-school students. Requirement was made the posters should be of uniform size, 22 x 28 inches; must be original in idea and on any subject having to do with health. In 1931, 165 posters were received from the following named high schools:

Aurora.
Burrton.
Cherokee.
Cherryvale.
Clay Center.
Delia.
Dodge City.
Emporia.
Fairview.
Holton.
Hutchinson.
Independence.
Junction City.
Kenneth.
Lawrence.
Leon.
Louisville.
Lyons.
Manhattan.
Marysville.
Mayetta.
McPherson.
Miltonvale.
Minneapolis.
Neodesha.
Ottawa.
Paola.
Pittsburg.
Pomona.
Salina.
Scammon.
Scott City.
St. Francis.
Topeka.
Westmoreland.

In 1932, 202 posters were received from the following-named high schools:

Atchison.
Bonner Springs.
Burlington.
Caney.
Council Grove.
Dellvale.
Denton.
Dighton.
Dodge City.
Dorrance.
Esbon.
Fairview.
Fort Scott.
Frankfort.
Glasco.
Herington.
Hiawatha.
Hutchinson.
Junction City.
Kansas City.
Lawrence.
Lebanon.
Lenexa.
Liberal.
Lyons.
Maize.
Manhattan.
McPherson.
Merriam.
Neodesha.
Oberlin.
Osage City.
Osawatomie.
Ottawa.
Overland Park.
Parsons.
Pittsburg.
Richfield.
Rosedale.
Salina.
Solomon.
Sycamore.
Topeka.
Wakeeney.
Wichita.

In addition to prize awards for the five best health posters, the Kansas Tuberculosis and Health Association each year awarded a special prize of $5 for the best poster on the prevention of tuberculosis. Noel Raker, student in Hutchinson high school, through decision of the committee, received the $25 award for first prize in both 1931 and 1932, in addition to the special awards for the best poster on tuberculosis prevention.

The following-named students received honorable mention for posters submitted in the 1931 and 1932 contests:

1931.

Paul Kubitschek, Salina.
Hazel O'Neal, Salina.
Margaret Fairman, Manhattan.
Cecil Wilson, Salina.
Wilbur Williams, Pittsburg.
Harriet Danielson, Salina.
Faye Travis, Salina.
Helen Louise Gregg, Cherryvale.
Verona Marshall, Salina.
Floyd Wiley, Junction City.

1932.

Roy Tramel, Kansas City.
Wayne Bert Harris, Pittsburg.
Ralph Harbison, Ottawa.
Robert Tull, McPherson.
Kenneth Swanson, Salina.
Rosalee Young, Fort Scott.
Harold Schrader, Hutchinson.
Leo Ellis, Salina.
Hazel Lefmann, Lawrence.
Kenneth Robinson, Caney.

Reproductions of prize-winning posters for each of the two years will be found on succeeding pages of this report.

FIGURE 8.

NOEL RAKER.

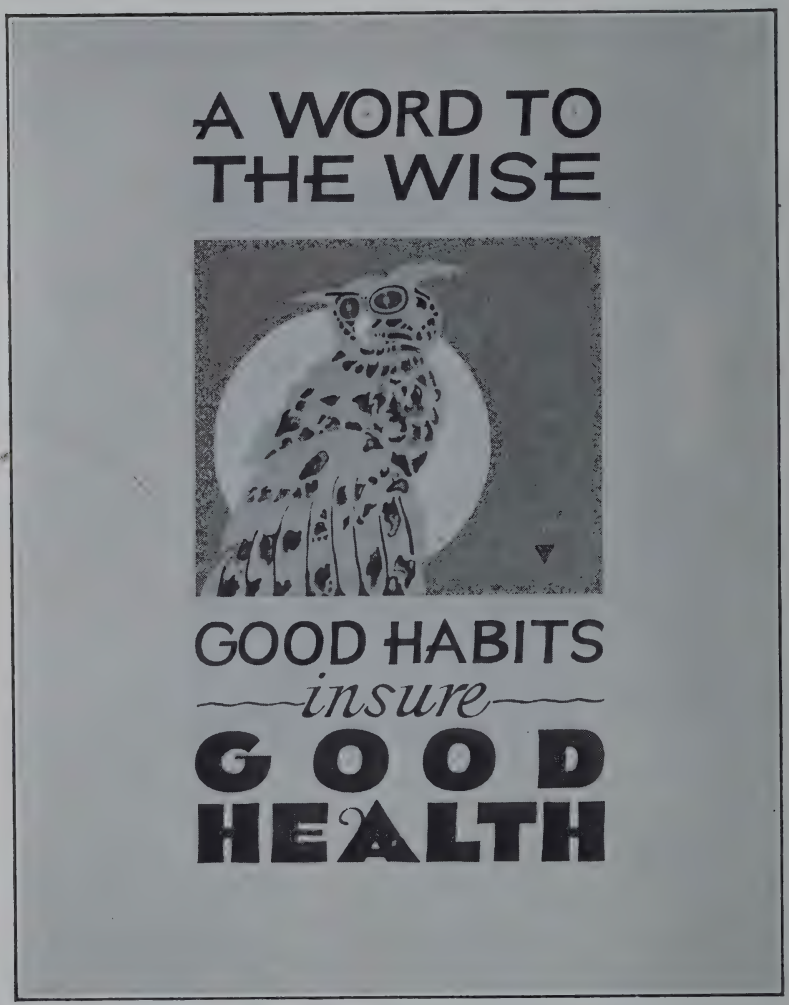

FIGURE 9.

First prize award, 1931 health poster contest. Drawn by Noel Raker, Hutchinson high school.

FIGURE 10.

Second prize, $15. Chester Colwell, McPherson high school. 1931.

FIGURE 11.

Third prize, $10. Frank Rowan, Ottawa high school. 1931.

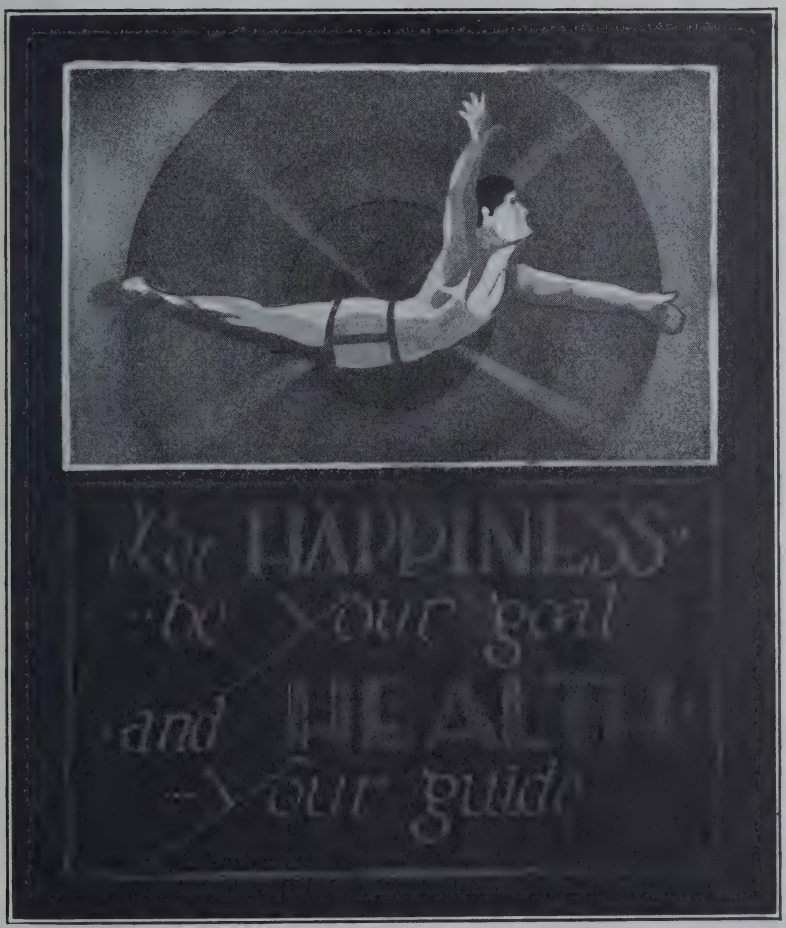

FIGURE 12.

Fourth prize, $5. Wayne Bert Harris, Pittsburg high school. 1931.

FIGURE 13.

Fifth prize, $3. Errol Huntington, Scott City high school. 1931.

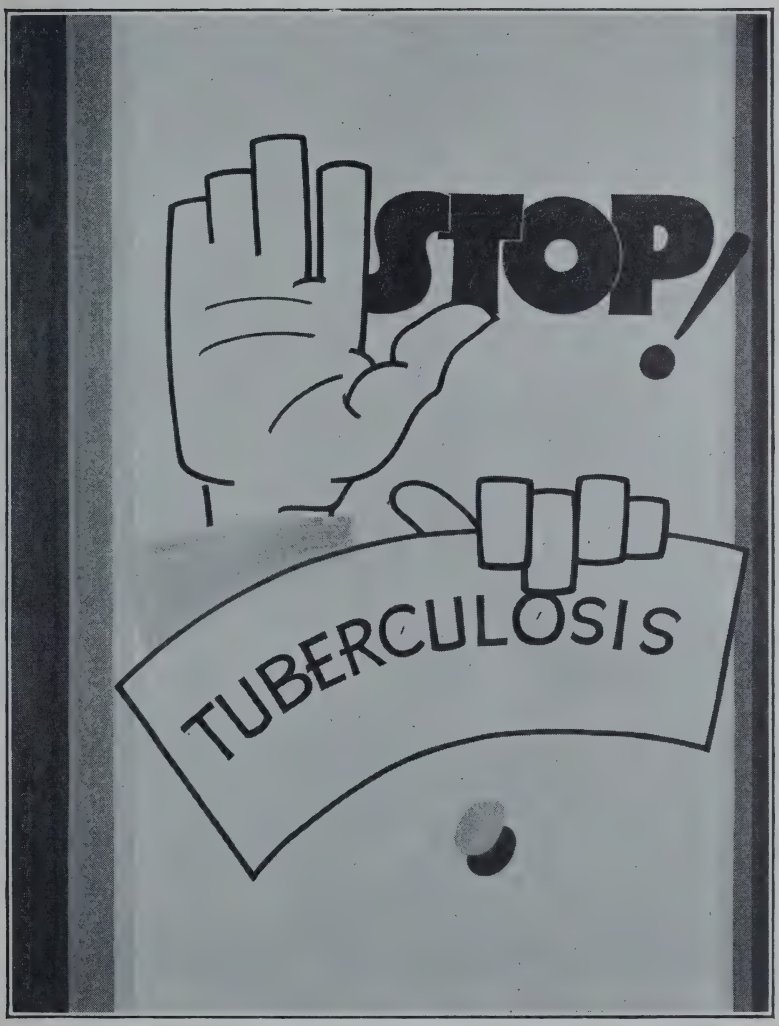

FIGURE 14.

Special award, $5. Noel Raker, Hutchinson high school. 1931.

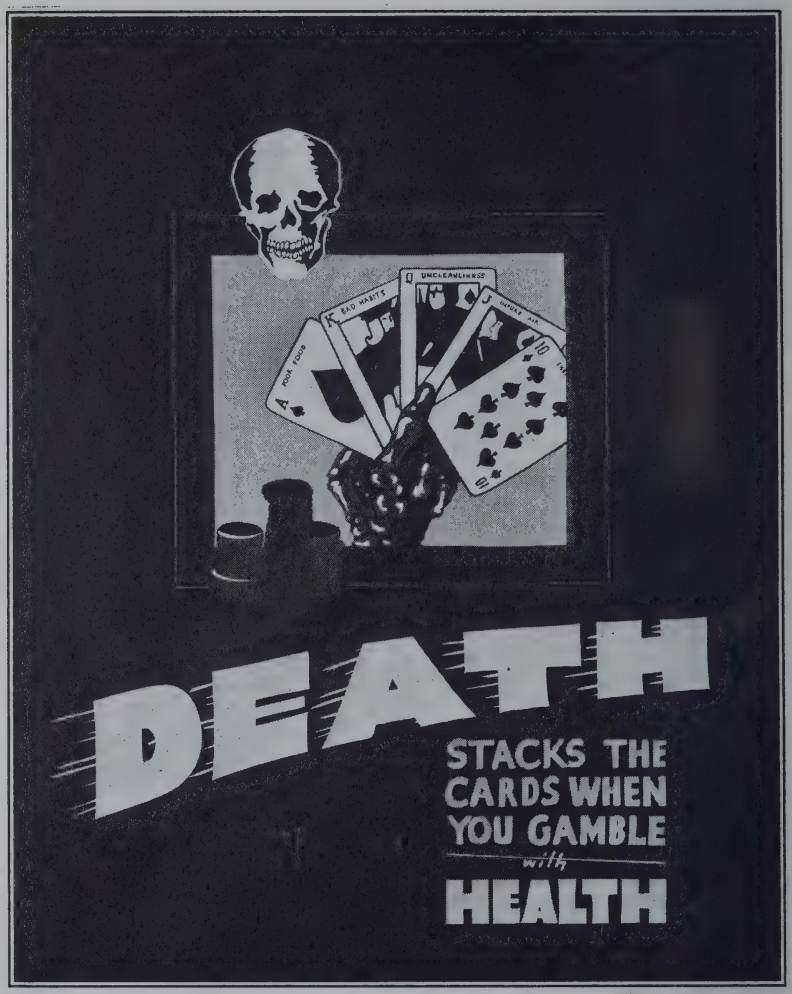

FIGURE 15.

First prize award, 1932 health poster contest. Drawn by Noel Raker, Hutchinson high school.

FIGURE 16.

Second prize, $15. Billy Lowder, Wyandotte high school, Kansas City. 1932.

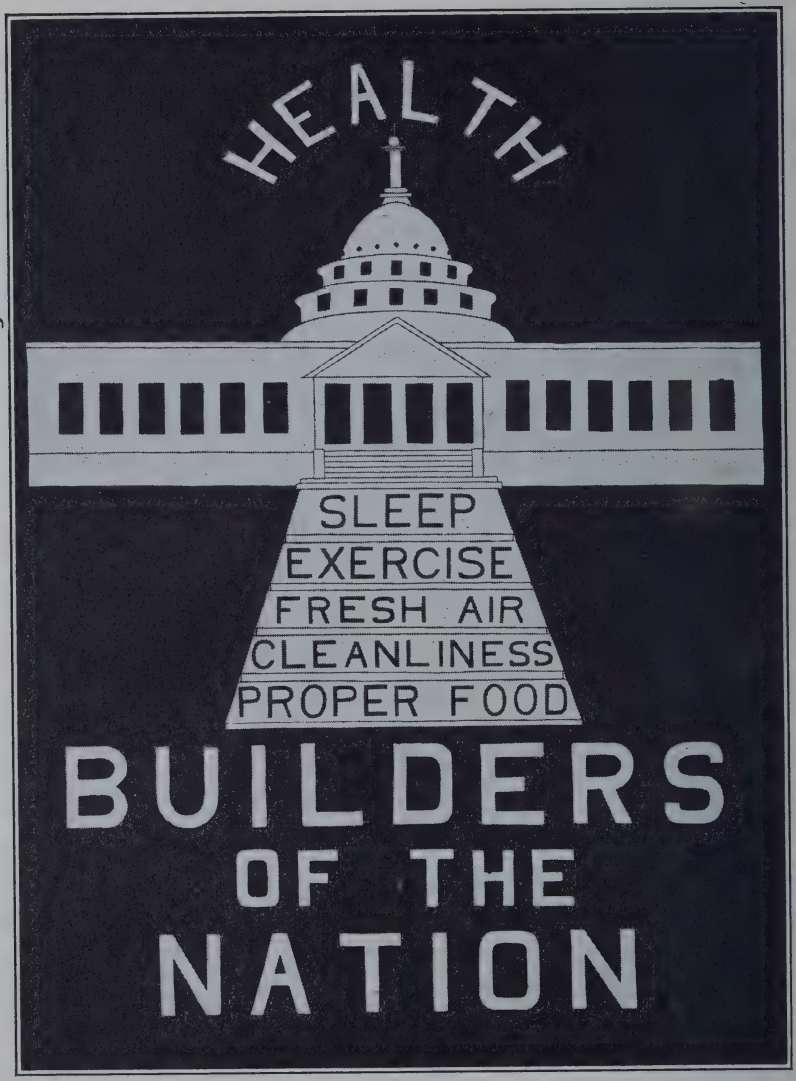

FIGURE 17.

Third prize award, $10. Katherine Holman, Manhattan high school. 1932.

FIGURE 18.

Fourth prize award, $5. Billy Martin, Hiawatha high school. 1932.

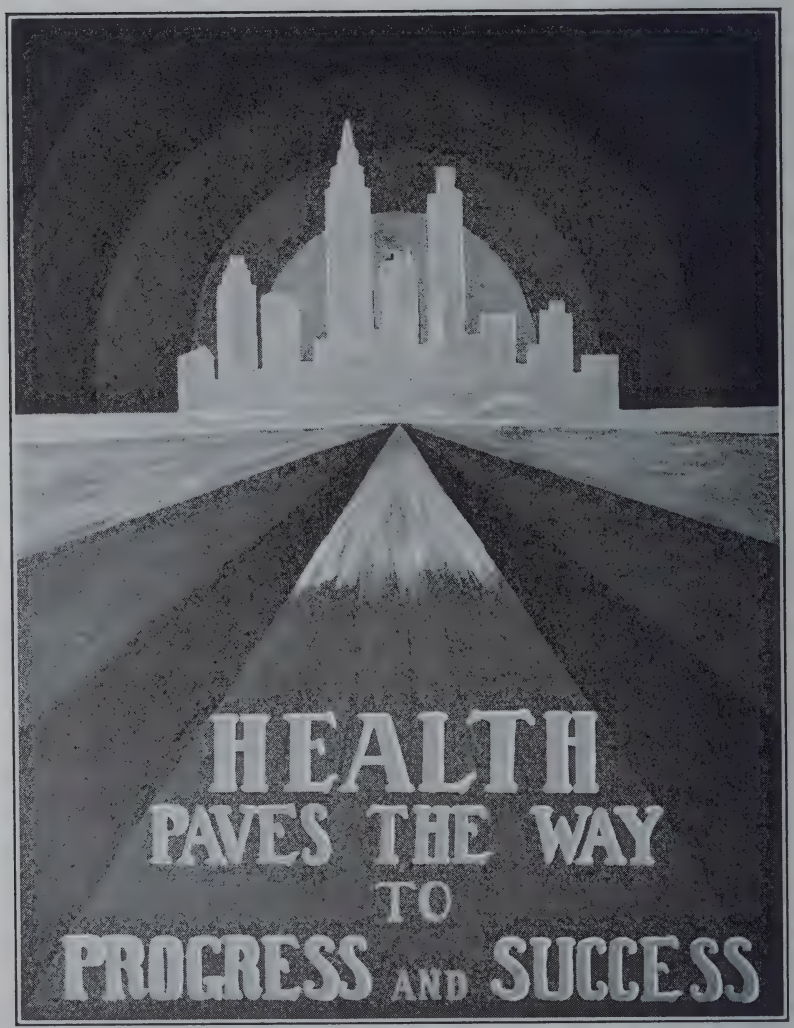

FIGURE 19.

Fifth prize award, $3. Chester Colwell, McPherson high school. 1932.

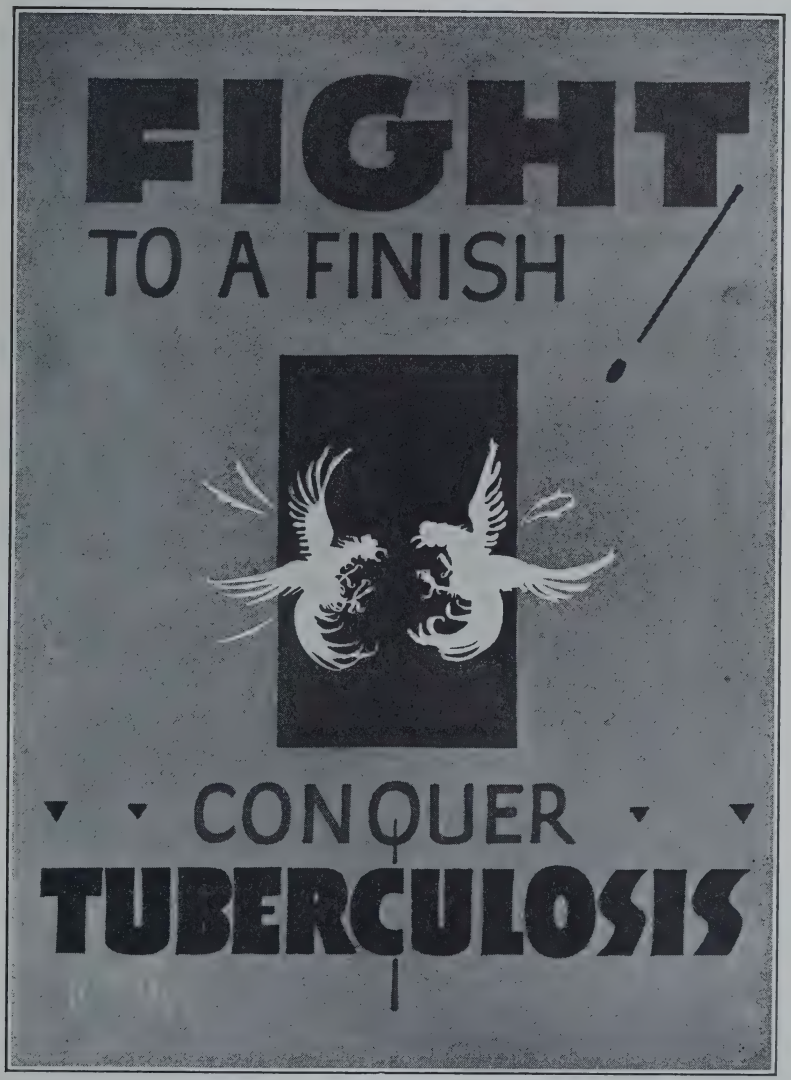

FIGURE 20.

Special award, $5. Noel Raker, Hutchinson high school. 1932.

PUBLIC HEALTH EDUCATION.

Publications. Because of a lack of appropriations, the publications of the State Board of Health are limited to bulletins on communicable diseases, the Mother's Manual, biennial report, the weekly morbidity report and the "Communicator." The morbidity report is mimeographed and mailed weekly to the health officers, while the "Communicator" is a monthly news bulletin, also mimeographed and mailed to health officers, nurses and others interested in public health.

Approximately 18,000 bulletins on communicable diseases were distributed during the biennium; 25,815 Mother's Manuals; 9,971 prenatal letters and more than 125,000 mimeograph bulletins.

Classes at Washburn College. The secretary teaches two classes at Washburn College during the second semester. Personal hygiene is a one-hour class and is required of all entering students. Approximately 200 students were enrolled in the class in each of the two years. The second class is a three-hour course, elective and limited to juniors and seniors. The average enrollment in this class for the two semesters was 26.

Radio Talks. During the past sixteen months the department has prepared and had broadcast over radio station KFBI, at Milford, 61 five-minute health talks. The estimated listening audience of this station is 4,000,000.

Public Addresses. Representatives of the State Board of Health during the biennium made 70 addresses on public health subjects before more than 13,000 people.

DEGENERATIVE DISEASES.

Preventive medicine has solved the problem of the control of the major communicable diseases. Plague, yellow fever, malaria, cholera, leprosy, rabies, smallpox, typhoid fever, scarlet fever, tuberculosis, whooping cough, measles, diphtheria, syphilis, gonorrhea and the diseases of early infancy which in past years wrecked countless homes and brought grief, death and destitution to countless numbers, have either been completely eradicated or the method of their prevention is known.

The diseases which may be classed as being coincident with heredity and our modern life, on the contrary, continue to increase despite our scientific knowledge. In this group may be included: heart disease, cancer, apoplexy, Bright's disease, appendicitis, ulcer of the stomach or duodenum and in addition, deaths from suicides, homicides and automobile accidents.

The great majority of deaths from the principal diseases of the "degenerative type"—heart disease, apoplexy and Bright's disease—are in persons past fifty years of age. Each death under seventy-five years of age of one of our bankers, statesmen, industrial leaders or professional men brings a distinct economic and cultural loss to the state. In all probability, at least ten persons are partially disabled from the group of diseases named above to each death from these causes.

If this tendency to an increase in this group of chronic diseases advances in the next fifty years as it has in the past, the political, industrial and professional leaders will have a shorter life expectancy after forty than they have to-day. It has been said it is not a coincidence the average longevity of the

Presidents before the Civil War was 12.13 years longer than of those Presidents who came after the Civil War.

An industrial corporation will not trust its machinery to an engineer with hardened arteries, high blood pressure or heart or kidney disease, because it has been found that these men cannot be depended upon for prompt action in case of an emergency. The time is not far distant when it will be considered just as important for executives of industry to have a normal blood pressure with normal arteries to provide a normal blood supply for a normal heart and brain as may be required of the engineer of the most important machine of any industry.

FULL-TIME COUNTY HEALTH DEPARTMENTS.

Efforts to furnish adequate health protection to citizens of rural areas of the United States date from the earliest days of the republic. However, until the time of the Civil War little headway was made and only seven states had provided for the organization of local boards of health. After the year 1865 the movement began to gain headway, and by the end of the nineteenth century practically all states had made some provision for health service in the rural districts.

As time progressed the various states instituted different methods of local health service. Some of the states based health protection upon towns and villages as units, while others used the county as the unit. Prior to about 1910, the duties performed by these county, town or village health officers were limited in amount and character. Boards of health were given very broad powers, but in practice they concerned themselves almost entirely with the control of communicable diseases and the abatement of nuisances. With the beginning of the present century there developed a sudden and great extension in the conception of what constituted the proper function of a health department. Many of the cities by this time had well-organized health departments, but for the most part the rural areas had been neglected. Many workers were of the opinion that adequate health protection for rural communities could only be given by organizing rural health departments with sufficient funds to establish and carry on an effective and economical program of work.

The first full-time health department was established in Yakima county, Washington, in 1911. On January 1, 1930, 505 counties in the United States were provided with local health service under whole-time officers. It becomes more and more evident to those with practical experience in the public health field that the agencies concerned in the promotion of specialized health activities such as the control of the acute communicable diseases; tuberculosis and venereal diseases control; food, water and milk sanitation; infant and maternal hygiene; child health, etc., may perform most efficiently and economically by correlating their special activities with and making them a part of a well-balanced program of local official health service under the immediate direction of a qualified whole-time health officer.

The protection of lives and health should be regarded as essential to public welfare, for without health, little or nothing can be accomplished. We believe, therefore, that in the organization of the full-time county health department lies the policy of adequately safeguarding and protecting the public health.

CHRONOLOGICAL REPORT OF THE SECRETARY.

For the Year 1930.

July 7. Conferred with the Morris county commissioners in the office at Topeka, in regard to the possibilities and advantages of a full-time health department for that county.

July 11. At Leavenworth, conferred with Col. Percy Jones, M.C., in charge of the station hospital, Fort Leavenworth; G. F. Jensen, secretary of the Leavenworth Chamber of Commerce, and Doctors Stacey and McGee in regard to the possibilities of a full-time health department for Leavenworth county.

July 12. On request of Dr. C. L. Miller, Greenwood county health officer, investigated four cases of poliomyelitis in and near Madison.

July 17. Miss Linnie Beauchamp, nursing field representative, A. R. C., St. Louis, called at the office and the work of the Red Cross nurses in the state was discussed with her.

July 22. At Council Grove, meeting with the county commissioners of Morris, Chase and Wabaunsee counties, where plans were presented to include the three counties in a district health department. Accompanied by Doctors Kinnaman and Montgomery.

July 25. At La Cygne, addressed the Commercial Club on "Health Conservation." Approximately 60 members and guests were in attendance.

July 29. Accompanied by Earnest Boyce, chief engineer, made an inspection of the Ottawa sewage-disposal plant and also the swimming pool at Forest park.

August 4. On request of Dr. F. G. Bartel, county health officer, investigated typhoid carriers at Newton. Accompanied by Doctor Kinnaman.

August 7. At Osawatomie, meeting with the Board of Administration in regard to the sterilization of certain patients in the state hospital.

August 11. Conferred with Mrs. Walter McNab Miller, of the American Child Health Association, in regard to the possibility of developing a state child health council.

August 16. On vacation, return delayed four days because of illness in my family.

September 4. At Topeka, special meeting of the State Board of Health to discuss the poliomyelitis epidemic.

September 11. Miss Linnie Beauchamp, nursing field representative A. R. C., St. Louis, called at the office and various phases of health work were discussed with her.

September 12 and 13. At Topeka, supervised and assisted with the physical examinations of entering students at Washburn College.

September 15. At Topeka, made physical examinations of Washburn high-school students.

September 17. At Clay Center, addressed the monthly meeting of the Clay County Medical Society. Fourteen members were present.

September 21. At Topeka, conferred with Dr. J. R. Mathews, health officer of Riley county, in regard to health conditions in that county.

September 22. At Topeka, conferred with A. A. Hotchkiss, county attorney of Osage county, and Dr. J. W. Scott, of Ottawa.

September 24. Left for New York, arriving on the morning of September 26, and attended a meeting of the subcommittee on business methods, Dr. Geo. C. Ruhland, of Syracuse, N. Y., being chairman of the committee. Returned to Topeka on September 27.

September 29. At Topeka, conferred with Col. Percy Jones, M. C., Fort Leavenworth, and Dr. A. L. Suwalsky, city health officer of Leavenworth, in regard to preventive measures for the control of poliomyelitis.

October 10 and 11. At Chicago, Ill., attended meeting of the public health organization committee of the White House Conference, Dr. E. L. Bishop, of Nashville, Tenn., being chairman of the committee.

October 13. At Newton, addressed the monthly meeting of the Harvey County Medical Society, approximately 60 members and guests being present. Members of the Marion and McPherson county societies were invited guests.

October 14. At Fort Scott, addressed the Second District Federated Clubs, approximately 250 being present.

October 16. At Topeka, conferred with Judge Greenleaf, of the Public Service Commission, and representatives of the Brotherhoods of Locomotive Engineers, Firemen, Conductors and Brakemen, in regard to improved drinking-water facilities for train crews.

October 20. At Emporia, addressed the City Club, with approximately 100 present. Conferred with Dr. C. L. Miller, health officer of Greenwood county, and Dr. J. S. Fulton, health officer of Lyon county.

October 24. At Topeka, conferred with Dr. H. E. Hasseltine, of the United States Public Health Service, in charge of undulant fever investigations.

October 25-31. En route to, attending and returning from the fifty-ninth annual meeting of the American Public Health Association at Fort Worth. Presented a paper on "Accidents" before the vital statistics section, and also discussed Doctor Kinnaman's paper on diphtheria immunization presented before the epidemiology section.

November 4. At Topeka, conferred with Dr. Wm. F. Walker and Dr. Joseph P. Kane, both of the American Public Health Association, in regard to the Inter-Chamber Health Conservation Contest. In Kansas City, in the afternoon, with these two representatives conferred with the health committee of the Kansas City Chamber of Commerce.

November 7. At Topeka, addressed the public health nurses' section of the Kansas State Teachers Association, approximately 45 present.

November 11. At Topeka, conferred with Dr. P. W. Covington, western representative of the International Health Division of the Rockefeller foundation.

November 16-24. En route to, attending and returning from the White House Conference on Child Health and Protection, at Washington, D. C.

December 2. At Topeka, conferred with Dr. M. D. McComas, health officer of Republic county, in regard to health conditions in that county.

December 3-5. At McPherson, conferred with Mr. Carlson, utilities commissioner of that city, in regard to the sewage-disposal plant. Inspected municipal water plants at Council Grove and Herington. Conferred with the superintendent of schools at Haven in regard to the meningitis epidemic in that city. Inspected mausoleum at Halstead.

December 9. At Wichita, addressed the state meeting of the Kansas Safety

Council, approximately 75 being present. In the evening, attended a meeting at Eureka in honor of Dr. C. L. Miller, retiring health officer of Greenwood county.

December 10. At Topeka, attended meeting of the health committee of the Topeka Chamber of Commerce.

December 15. At Topeka, conferred with Dr. H. T. Salisbury, health officer of Coffey county. Also conferred with E. E. Lamb, county attorney of Woodson county.

December 21-24. At Fort Scott, with Mr. Boyce and Mr. Lawrence, investigated the typhoid fever epidemic which had occurred in that city in recent months.

December 30. At Topeka, attended the morning session of the annual meeting of the Kansas Tuberculosis and Health Association.

FOR THE YEAR 1931.

January 7. At Topeka, addressed the members of the Hi-12 Club, approximately 75 being in attendance.

January 13. At Topeka, addressed the State Association of Kansas Fairs on "Inspection Service at Fairs." Approximately 60 were present.

January 14. At Topeka, addressed the Dairy Division of the State Board of Agriculture on "Safe Milk in Its Relation to Public Health." Approximately 65 were present.

January 19. At Kansas City, Mo., addressed the Kansas City Engineers' Club on "Accidents." Approximately 45 were present.

January 20. At Kansas City, attended a meeting of the Council of the Kansas Medical Society, and also a meeting of the Bureau of Public Relations.

January 21. At Topeka, addressed the annual meeting of the Kansas Veterinary Medical Association on "The Relation of the Veterinarian to Public Health." Approximately 150 members and guests were present.

January 22. At Osawatomie, attended a meeting with the Board of Administration at the state hospital to consider the advisability of sterilizing certain patients.

January 30. At Manhattan, addressed the meeting of the dairy inspectors on "Safe Milk in Its Relation to Public Health." There were 30 present.

February 5. At El Dorado, addressed the Chamber of Commerce in the interest of the Inter-Chamber Health Conservation Contest, with some 60 members present.

February 6. At Kansas City, addressed the students of the Williams Institute of Embalming on "Public Health," with 40 present.

February 10. At Fort Scott, met with the city commissioners and presented the report of the investigation of the typhoid epidemic which occurred in that city during the latter part of 1930.

February 11. At Lawrence, addressed the annual meeting of the Kansas Waterworks Association on the subject, "Accidents and Their Causes." The total attendance at this meeting was 100.

February 17. At Wichita, addressed the meeting of the Sedgwick County Medical Society on "Duties and Accomplishments of the State Board of Health." The total attendance was 40 members and guests.

February 25. At Topeka, attended the meeting of the group called by the governor for the purpose of organizing the Kansas State Council for Public Welfare.

March 3. At Topeka, addressed the Girl Reserves on the subject, "Personal Health." There were 75 present.

March 20. At Manhattan, addressed the meeting of the Kansas Conference of Social Workers on "The White House Conference." There were 60 present.

March 21. At Topeka, addressed the meeting of the Shawnee county school boards and teachers on "Infectious and Contagious Diseases in Schools." There were approximately 600 in attendance.

March 26. At Pittsburg, addressed the meeting of the joint county school board convention at the State Teachers College on "The Full-time Health Department in Relation to School Health and Efficiency." At the afternoon session discussed the subject, "Dollars and Cents of Health Education." The attendance at each of the two sessions totaled approximately 450.

March 30. At Parsons, met with the health committee of the Chamber of Commerce to discuss, with a government committee, health conditions in and near the city of Parsons. This committee was making an investigation in regard to the possibility of locating a narcotic hospital in or near that city.

April 2-3. At Des Moines, Iowa, attended the meeting of the Iowa Public Health Association and addressed the evening session on "Medical Care and Public Health Service of the White House Conference." There were 125 persons present for the evening meeting.

April 6-8. At Topeka, the annual school for health officers and public-health nurses.

April 10. At Kansas City, addressed the Kansas Federation of Women's Clubs on the work of the White House Conference. There were 250 persons present.

April 16. At Arkansas City, addressed the Cowley County Medical Society, with 79 members and guests present. This meeting was in honor of three members of the society who had each been in the practice of medicine more than 50 years.

April 17. At Winfield, on request of the health officer and school nurse met with a committee in regard to further advancing nursing activities in the Winfield schools and in the city. At Greensburg, conferred with Dr. J. A. McLaughlin, county health officer, in regard to smallpox in that county. At Liberal, addressed the meeting of the Seward County Medical Society, with nine members present.

April 18. At Sublette, conferred with Dr. E. E. English, county health officer, in regard to diphtheria immunization. At Dodge City, conferred with Dr. C. L. Hooper, county health officer, in regard to diphtheria immunization and Mr. Balderston in regard to the order of the State Board of Health for construction of a sewage-disposal plant at Dodge City. At Kinsley, conferred with Dr. F. E. Dargatz, county health officer, in regard to health conditions in that county.

April 25-May 2. En route to, attending and returning from the annual conference of state and territorial health officers with the surgeon general and staff of the U. S. Public Health Service, and the annual conference of state and provincial health authorities.

May 5. At Manhattan, attended the annual meeting of the Kansas Medical Society and as chairman of the committee on public health made report for that committee.

May 14 and 19. At Lawrence, met with a committee from the University in regard to additional work required of the laboratories by reason of an act of the 1931 legislature. Accompanied by Mr. Dalton.

June 1. At Topeka, met with the Board of Administration at the state hospital in regard to the sterilization of certain patients.

June 9. At Osawatomie, met with the Board of Administration at the state hospital in regard to the sterilization of certain patients.

June 11. At Topeka, attended a meeting of the executive committee of the Kansas State Council for Public Welfare on call of the chairman, Mrs. J. E. Raymond. By action of the committee, was named as chairman of the health section.

July 3. At Topeka, attended meeting of the Henrietta Brown Tuberculosis Research Committee. Dr. C. S. Kenney was employed as director. The secretary was instructed to confer with the commissioners of Harvey county in regard to continuing the work in that county during the coming year.

July 13. At Topeka, conferred with Dr. James Wallace, field director of the American Public Health Association, in regard to the Inter-Chamber Health Conservation Contest.

July 15. At Topeka, with O. J. Gould, dairy commissioner, Thos. I. Dalton, and Dr. J. F. Adee, market milk inspector, met with the city commission of Topeka and requested additional funds be provided in the 1932 budget for the city health department, and especially the milk sanitation program.

August 7. At Topeka, met with the city commission and the tax committee of the Chamber of Commerce, in the office of the mayor, to make request for inclusion in the 1932 budget of additional funds for the city health department.

August 17-26. On vacation.

September 9. At Topeka, conferred with R. L. Forney, statistician for the National Safety Council, in regard to methods of classification of accidental deaths.

September 12-19. En route to, attending and returning from the sixtieth annual meeting of the American Public Health Association at Montreal, Canada. Presented a discussion on "Accidents" before the vital statistics section. Was elected a member of the governing council of the health officers section.

September 29. At Topeka, conferred with Dr. A. R. Sult, state health officer of Arizona. Doctor Sult visited the various divisions of the department and conferred with the division chiefs.

October 6. At Topeka, attended a meeting with the Board of Administration at the State Hospital to consider the advisability of sterilizing certain patients.

October 8. At Topeka, conferred with Dr. P. W. Covington, western representative of the Rockefeller Foundation. Plans were discussed for the development of a branch laboratory through assistance from the Foundation.

October 13-16. At Chicago, attended the meeting of the National Safety Congress. On October 13, in the statistics section, discussed Doctor Logie's paper on "A Logical Classification of Accidents." On the morning of October

16, before the street and highway traffic section, presented a paper on "The Kansas Drivers' License Law."

October 19. At Osawatomie, attended a meeting with the Board of Administration at the State Hospital to consider the advisability of sterilizing certain patients.

October 20. At Topeka, attended the meeting of the Kansas State Council for Public Welfare.

October 21. At Wichita, attended the annual meeting of the Kansas League of Municipalities and presented a discussion on "Community Responsibility for Health Protection." This paper was presented at the luncheon session and approximately 80 were in attendance.

October 22. At Topeka, conferred with Miss Mary E. Smith, R. N., representative of the National Society for the Prevention of Blindness.

October 26-31. En route to, attending and returning from the meeting of the rural health committee of the American Public Health Association at New York.

November 10. At Winfield, attended a meeting of the Board of Administration at the State Training School to consider the advisability of sterilizing certain patients.

November 13. At Topeka, attended a meeting of the health committee of the Chamber of Commerce.

November 17. At Lawrence, addressed an afternoon session of the Women's Club on the proposed program of the Kansas State Council for Public Welfare, approximately 60 being present. At night, addressed the meeting of the Wyandotte County Medical Society on "Poliomyelitis," approximately 30 being present.

November 18. At Parsons, addressed the Labette County Medical Society on "Poliomyelitis," approximately 30 being present.

November 24. At Topeka, conferred with Miss Isabelle Carruthers, R.N., of the Metropolitan Life Insurance Company.

December 8. At Topeka, conferred with Mrs. Walter McNab Miller, of the American Child Health Association, in regard to the state council.

December 15. At Topeka, conferred with Dr. H. E. Hasseltine, of the United States Public Health Service, in charge of undulant fever investigations.

December 17-19. At Wakeeney, conferred with Dr. W. Y. Herrick, health officer of Trego county, in regard to diphtheria immunization; with Dr. R. L. Ruttan, health officer of Gove county, in regard to diphtheria immunization, at Grainfield, and Dr. J. L. Jenson, health officer of Thomas county at Colby, in regard to health conditions in that county. Addressed the meeting of the Decatur-Norton County Medical Society at Goodland on "Poliomyelitis" and conferred with Dr. M. J. Renner, county health officer. Addressed the Sherman County 4-H Club, approximately 160 being present. At Hays, conferred with Dr. G. C. Unrein, health officer of Ellis county, in regard to diphtheria; with Dr. Carl J. Cramm, health officer, and Mr. Dillner, member of the board of county commissioners of Russell county, in regard to diphtheria immunization, and at Ellsworth with Doctors O'Donnell, Hissem and Mayer in regard to diphtheria immunization in Ellsworth county.

FOR THE YEAR 1932.

March 2-4. At Larned, attended a meeting with the Board of Administration at the State Hospital to consider the advisability of sterilizing certain patients. Accompanied by Mr. Lawrence, who inspected the sewage-disposal facilities at the State Hospital and conferred with the officials and members of the Board in regard to the construction of the proposed plant. Conferred with the city clerk of Garden City in regard to sewage-treatment facilities for that city. Inspected the sewage-disposal plant at Dodge City and conferred with Doctor Hooper, county health officer, and Mayor Hart. At Protection, inspected the sewage-treatment plant, and conferred with Mayor Teague in regard to same. At Pratt, conferred with Dr. J. R. Campbell in regard to the diphtheria epidemic in Pratt county, and at Kingman conferred with Dr. H. E. Haskins. At Wichita, conferred with Dr. R. E. Hobbs, city health officer, and inspected the sewage treatment plant now in process of construction.

March 10. At Lawrence, addressed the students of the University of Kansas School of Pharmacy, 50 being present.

March 11. At Topeka, attended the meeting of the executive committee of the Kansas State Council for Public Welfare in the office of the Public Welfare Commission.

March 12. At Topeka, conferred with E. T. Rafferty, representative of the brotherhoods, in regard to eye injuries thought to originate from the use of sand in oil-burning locomotives. Attended a meeting of the health committee of the Topeka Chamber of Commerce.

March 23. At Topeka, conferred with E. T. Rafferty and Dr. C. E. Rice, of the United States Public Health Service, detailed to make a study of the eye injuries presumably originating from the use of sand in cleaning oil-burning locomotives.

March 23. At Topeka, conferred with Dean Margaret Justin; Dean H. Umberger; Geo. A. Allen, state superintendent of public instruction, and Miss Ruth Kolling in regard to the program for the May meeting of the Kansas State Council for Public Welfare.

April 14. Accompanied by Mr. Lawrence, made an inspection of the El Dorado water plant and discussed plans for its improvement with two members of the commission and the city manager. Also attended the funeral of Dr. M. H. Hostetler, former Sedgwick county health officer, at Wichita.

April 19. At Osawatomie, attended a meeting with the Board of Administration at the State Hospital to consider the advisability of sterilizing certain patients.

May 3-5. Attended the annual meeting of the Kansas Medical Society at Kansas City. Presented a paper on undulant fever before the general session on May 5. Addressed the Lions Club, the Auxiliary of the Medical Society, and a public meeting. Also gave a 15-minute address over station WREN on the evening of May 3.

May 24. At Topeka, attended a meeting with the Board of Administration at the State Hospital to consider the advisability of sterilizing certain patients.

May 31-June 8. En route to, attending and returning from the thirtieth

annual conference of the Surgeon General with the state health officers and the annual conference of State and Provincial Health Authorities of North America. As chairman of the milk committee of the Conference of State and Provincial Health Authorities presented the report. Elected as a member of the executive committee of the conference.

June 29. At Osawatomie, addressed a meeting of the Franklin County Medical Society at the State Hospital, approximately 50 members and guests being present.

APPROPRIATIONS.

A total of $146,450 was appropriated for the State Board of Health for the biennium ending June 30, 1932. Of this amount $72,850 was available for the fiscal year ending June 30, 1931, and $73,600 for the fiscal year ending June 30, 1932. These appropriations were exclusive of appropriation for the Division of Vital Statistics, which is derived from a one-dollar fee received from each marriage license. The only appropriation made by the legislature for the Division of Sanitation is for the travel of the engineers.

For the fiscal year ending June 30, 1931, the sum of $526.08 was unexpended and returned to the general fund, and for the fiscal year ending June 30, 1932, the sum of $2,758.46. The sum of $2,660 represented the amount Governor Woodring had requested the department to reduce expenditures from the 1931 appropriations.

The appropriations and expenditures for each of the fiscal years 1930 and 1931 are as shown on page 44.

CONCLUSIONS.

The report presents the accomplishments of the State Board of Health during the past two years. However, a study of the data shows that deaths from the degenerative diseases have shown marked increases in recent years. Unfortunately, the exact causes of these and other chronic diseases are still obscure. It is believed the increase in some of the chronic diseases is due to wrong habits of life; the result of nutritive disturbances, of overfeeding and underfeeding, and improperly selected diet.

Authorities have stated if tuberculosis were eradicated, two years would be added to each baby's probable life existence. If all other communicable diseases were eradicated and if in other respects full advantage were taken of the knowledge of preventive medicine, an additional five years would be added. Through the results, therefore, of constructive public health programs an approximate gain would be added to our present life expectancy. The hope of the future lies in the continued and increasing growth of scientific knowledge which may be applied to the protection against disease and the promotion of the public health.

In closing we desire to quote again in part, from previous resports: "The purpose of public health service has been defined in brief: 'To make growth more nearly perfect, decay less rapid, life more vigorous and death more remote.' Good health means good public efficiency. Nothing will increase public efficiency more than an increase or promotion of the public health. The money invested in public health pays greater dividends than money invested in any other business."

APPROPRIATIONS AND EXPENDITURES.

Items.	1931.		1932.	
	Appropriations.	Unexpended.	Appropriations.	Unexpended.
Secretary (provided that he receives no other salary from the state)	$4,000	.....	$4,000	.....
Private secretary	1,500	.....	1,500	.....
Assistant chief food and drug inspector	2,000	.....	2,000	.....
Four food and drug inspectors at $1,800 each	7,200	.....	7,200	.....
Stenographer	1,200	.....	1,200	.....
Epidemiologist	3,300	.....	3,300	.....
Secretary to epidemiologist	1,200	.....	1,200	.....
Traveling expenses, epidemiologist	1,200	$16.66	1,200	$56.72
For research and investigation work, aid to counties, full time demonstration	7,500	.21	7,500	945.61
Expense of members of board, postage and incidental	1,250	505.46	1,000	74.00
For purchase of automobiles for inspectors	2,500	3.52	.....	.....
Traveling expenses of inspectors	5,000	.....	5,000	72.88
Miscellaneous and incidental expenses	2,000	.....	2,000	8.75
Sanitary fund for carrying out the provisions of chapter 65, article 1 (G) Revised Statutes of 1923, and for investigations into stream pollution and industrial wastes	3,000	.05	3,000	.17
For the purpose of free distribution of antitoxins, vaccines, serums and other prophylactic supplies	3,500	.17	2,500	.09
Maintenance and administration of public health laboratory and the department division of venereal disease control work; distribution of arsphenamine (606) to the indigent poor of the state, assistance and maintenance of clinics	10,000	.....	11,000	46.72
For support of division of child hygiene as provided in sections 65-152 and 65-153 of the Revised Statutes of 1923	10,000	.01	10,000	100.02
Purchase of toxin antitoxin for immunization of children	6,500	.....	10,000	1,453.50
Totals	$72,850	$526.08	$73,600	$2,758.46

In concluding this sixteenth biennial report, we wish to express our appreciation to the members of the State Board of Health, to the health officers and public health nurses, to the official and voluntary health agencies and the citizens of the state, who have coöperated with this department.

The relations of this department with other departments of state government have been most cordial at all times.

Respectfully submitted,

EARLE G. BROWN, M. D.,
Secretary and Executive Officer.

MEETINGS OF THE BOARD.

Special Meeting, 1930.

HELD IN TOPEKA, KAN., SEPTEMBER 4, 1930.

A special meeting of the Board was held in the office of the secretary at Topeka, on September 4, 1930, to discuss the possibility of adopting control measures to prevent the further spread of poliomyelitis prevalent in epidemic form in the state since July. The following Board members were present: Doctors McGuire, Aldrich, Robinson, Perkins, Eilerts, Thacher and Anderson. The meeting was called to order at 10:15 a. m.

On invitation, the following were present: Health officers: Dr. J. S. Fulton, Lyon county; Dr. M. D. McComas, Republic county; Dr. F. E. McCord, Shawnee county; Dr. H. R. Ross, Geary county; Dr. C. L. Miller, Greenwood county; Dr. M. H. Hostetler, Sedgwick county; Dr. G. W. Davis, Franklin county; Dr. Malcolm Newlon, Lincoln county; Dr. G. R. Walker, Hutchinson city; Dr. S. D. Henry, Kansas City, and Dr. Aurel Goodwin, Topeka city. Representatives of the University of Kansas Medical School: Dr. H. R. Wahl, and Dr. C. G. Leitch, of Kansas City, and Dr. N. P. Sherwood, of Lawrence. Dr. Paul E. Belknap, practicing physician of Topeka, was also present.

George A. Allen, state superintendent of public instruction, asked to be advised whether or not the spelling contest to be held during the time of the Free Fair at Topeka should be carried out as scheduled.

On motion, which was seconded and carried, the Board requested Mr. Allen not to have the spelling contest.

On motion, which was seconded and carried, the president was instructed to appoint a committee to formulate recommendations to be presented to the Board at the afternoon session. The following committee was named: Doctors Robinson, Aldrich, Wahl, Sherwood, Leitch, McComas, Hostetler and Brown.

The Board adjourned at 12:45 p. m. and was called to order at 2:15 p. m. The committee presented its report, which was adopted by unanimous vote of the Board, as follows:

STATEMENT ON ACUTE ANTERIOR POLIOMYELITIS (INFANTILE PARALYSIS)

ADOPTED AT A SPECIAL MEETING OF THE STATE BOARD OF HEALTH IN TOPEKA ON SEPTEMBER 4, 1930.

I. GENERAL STATEMENT.

1. The importance of prompt diagnosis and medical treatment of all cases of acute anterior poliomyelitis (infantile paralysis) will result in the saving of lives and the prevention of many deformities.

2. The germ which causes acute anterior poliomyelitis passes through the finest filter and is too small to be seen through the microscope. It is readily destroyed by heat and the usual chemical disinfectants.

3. The source of the infection is through the nose, throat and bowel dis-

charges of infected persons or articles recently soiled therewith. Carriers of poliomyelitis germs, although healthy otherwise, are thought to be common, especially during epidemics.

4. The manner of transmission is by direct contact with an infected person or with a carrier of the germ, or indirectly by contact with articles freshly soiled with the nose, throat, or bowel discharges of such persons and possibly by drinking milk contaminated by the nose, mouth and bowel discharges of persons in the active stages of the disease.

5. The period of development after exposure is uncertain because of inexact information as to the period of communicability and essentials for exposure, but is believed to be from three to ten days, and probably averages six days.

6. The disease frequently begins with an intestinal disturbance associated with sore throat, headache, vomiting, stiffness of the neck, fever, muscular pain or incoördination or both, unusual dullness or irritability, and slight or severe paralysis several days after onset. In the mild or so-called "abortive" cases paralysis may not occur. In rare instances paralysis may be the first symptom noted.

II. COMMUNAL OR PUBLIC PRECAUTIONS.

1. Efforts should be made to reduce the opportunities for direct contact infection by avoiding crowds.

2. Places of public assemblage should not be closed without the authority or at the suggestion of the local health officer. In very few communities, at the present time, are there sufficient numbers of cases to justify closing public meetings and assemblages.

3. Rules and regulations of the State Board of Health require immediate reporting of all cases to the local health officer and strict quarantine to be maintained. Provisional quarantine is required on suspected cases, and contacts including adults, until the diagnosis is definitely established.

4. Transportation of patients, ill with acute anterior poliomyelitis, is forbidden, except on permission of the health officer of the counties, cities, or states concerned.

5. There are, as yet, no accepted means of immunizing contacts against poliomyelitis.

III. EDUCATION IN CLEANLY PERSONAL HABITS.

Cleanly personal habits and personal hygiene are most important in the prevention of poliomyelitis, particularly with regard to the following:

1. Avoidance of all uncovered acts as in coughing, loud talking, sneezing or spitting.

2. Special emphasis should be placed upon the washing of the hands frequently, more especially before eating; unclean articles and fingers should be kept out of the mouth and nose. This advice is particularly applicable to all persons in attendance upon the sick.

3. The use of common towels, wash basins, glasses, eating utensils, lead pencils, toilet articles, etc., should be avoided.

4. Avoidance of exposure, fatigue and any bodily excess.

5. Persons in good health should continue their normal manner of life.

IV. SUGGESTIONS TO THE PATIENT.

1. Immediate, absolute isolation is required.

2. Patient should be placed in bed upon appearance of the symptoms of the disease, and when diagnosis is established should be kept in absolute bed rest. It is particularly important that the muscles involved be kept quiet until all muscle pains disappear.

3. The family physician should be called as early as possible and his advice strictly followed.

4. Massage and electrical stimulation should be avoided during the acute illness.

5. Thorough disinfection of all linens and excretions should be complied with as directed by the local health officer and the attending physician.

6. The convalescence from an attack of poliomyelitis may require as much as several months.
7. Terminal disinfection of the room is required after recovery of the patient.
8. Careful observance of the above recommendations will tend to minimize or prevent the severity and extent of the disability resulting from the disease.

No further business appearing, upon motion the Board adjourned.
The following bills were audited and allowed:

Dr. C. A. McGuire	$5.00
Dr. H. L. Aldrich	24.60
Dr. Charles W. Robinson	8.86
Dr. Anna Perkins	26.84
Dr. W. J. Eilerts	29.14
Dr. George I. Thacher	27.25
Dr. A. J. Anderson	7.56

EARLE G. BROWN, M. D., *Secretary and Executive Officer.*

First Quarterly Meeting, 1930.

HELD IN TOPEKA, KAN., SEPTEMBER 19, 1930.

The first quarterly meeting of the Kansas State Board of Health was held in the office of the secretary at Topeka, September 19, 1930. Members of the Board present included: Doctors McGuire, Anderson, Perkins, Thacher, Robinson and Henson. A quorum being present, the meeting was called to order at 10:15 a.m.

Minutes of the annual meeting held in Topeka on June 27, 1930, were read and upon motion accepted and ordered placed on file.

Minutes of the special meeting held in Topeka on September 4, 1930, were read and upon motion were accepted and ordered placed on file.

Reports were received as follows: Report of the secretary and Divisions of Communicable Diseases, Public Health Laboratory, Sanitation, Child Hygiene, Coöperative County Health Work, Food and Drugs, Vital Statistics, and Venereal Diseases.

Following a discussion in regard to nonreporting of poliomyelitis cases, Doctor Kinnaman on motion, which was seconded and carried, was directed to make an investigation in Osage county, and if conditions were found as reported, an information should be filed against Doctor Smith.

Bert C. Wells, city manager of Wichita, was present and discussed with the Board members the question of Wichita building a sewage-disposal plant.

Following a discussion, the Board by unanimous vote adopted three resolutions in regard to the city of Wichita, as follows:

"WHEREAS, The State Board of Health did on March 30, 1928, formally order that March 1, 1930, be set as the date for the expiration of all permits to the city of Wichita to discharge untreated sewage into the surface waters of the state; and

"WHEREAS, The city of Wichita, due to lack of legislative authority, has found it impossible to meet the requirements of this order as regards date of completion of treatment works (*i.e.*, March 1, 1930), but has completed preliminary plans for sewage treatment:

"THEREFORE, The State Board of Health, in view of the continued temporary need for the discharge of untreated sewage, hereby grants the city of Wichita

temporary permit to discharge untreated sewage into the surface waters of the state until September 1, 1931, at which time the preliminary part of complete treatment of sewage is to be in operation."

"WHEREAS, The city of Wichita has formally requested permit to extend the system of sanitary sewers by the construction of sewer district No. 21 and Lat. J, district No. 6, sanitary sewer No. 12, and

"WHEREAS, The Board recognizes that this extension of sewers is necessary to the proper sanitation of the city; and

"WHEREAS, The city of Wichita is definitely committed to proceed with a program calling for adequate sewage treatment:

"THEREFORE, The State Board of Health formally grants a permit to the city of Wichita to construct the sewer extensions above referred to in compliance with plans now on file with the Board; this permit to be void after September 1, 1931, in so far as the discharge of untreated sewage is concerned.

"WHEREAS, The State Board of Health did on March 30, 1928, formally order the city of Wichita to proceed without unnecessary delay to complete preliminary studies and to prepare plans, specifications and estimates of cost, together with plans for financing this project, and that this work be completed and submitted for approval of the Board not later than November 1, 1928; and

"WHEREAS, The city of Wichita has, on August 2, 1930, filed with the State Board of Health a complete engineering report dealing with the problems of sewage disposal: Therefore,

"*Be it resolved,* That the State Board of Health accepts this report as fulfilling the requirements of said order in so far as plans and estimates are concerned;

"*Be it further resolved,* That the Board approve the recommendations of the report that complete treatment by the activated sludge process be required and eventually installed;

"*Be it further resolved,* That due to the problem of financing, that preliminary treatment may be installed as a first step and permission be hereby granted to discharge partially treated sewage from September 1, 1931, to September 1, 1933."

On motion, which was seconded and carried, the Board instructed the secretary to forward names of poliomyelitis patients to the crippled children's commission.

On motion, which was seconded and carried, the following rules and regulations governing boarding homes and institutions for children, and maternity homes, were unanimously adopted:

The State Board of Health deems the following rules and regulations governing boarding homes and institutions for children, and maternity homes, be observed in order that due regard may be had to the health, comfort, welfare and morality of the inmates:

1. LICENSING:

(*a*) All licenses shall be granted for a term of one year.

(*b*) A license for a maternity home or boarding home for children applies only to the residence or location occupied at the time the license is granted and a change of residence or location automatically terminates the license, unless due notice is given to the State Board of Health.

(*c*) The number of children maintained in a home at any time shall not exceed the stated number in the license. The number of children shall be determined by the size of any institution or home as mentioned in section 1, allowing 400 cubic feet of sleeping space for each occupant and by the number of persons in such place, delegated for their care.

2. References: Any person, in any way connected with the care, supervision and maintenance of any place as mentioned in section 1 shall give satisfactory proof that he or she is free from infectious diseases and of good moral character.

3. Records:

(*a*) A register must be kept of all children cared for, and is subject to inspection; as well as the forms prescribed and provided by the State Board of Health.

(*b*) Failure to make these reports may constitute cause for the revocation of license.

4. Housing:

(*a*) The home shall conform in building and maintenance to the sanitary and safety ordinances of the city or county in which it is located.

(*b*) Windows and doors shall be screened.

(*c*) All sleeping rooms for children shall be outside rooms and have ample window space for light and ventilation. No dark courts or inside rooms permitted.

(*d*) There shall be adequate space for indoor play and a yard or some place other than the street for outdoor play.

(*e*) The home shall be provided with proper fire extinguishers, and institutions shall have suitable outside fire escapes in conformity with city and state laws.

(*f*) The heat of all rooms to be used by infants shall be sufficient to maintain a temperature of 70 degrees in severe weather. A guard must be furnished for each stove, open gas grate or fireplace.

5. Conditions in the Home:

(*a*) The health of the licensee and other adults shall be such that the welfare of the children is not interfered with by contact in the home.

(*b*) Moral conditions must be secure and an assurance that only moral conduct be taught and set forth as an example before children.

6. Care of Children:

(*a*) A thorough physical examination should be given each child before admission and each year that it remains in the home. Plans made for the correction of any defects found or any other medical attention necessary.

(*b*) Formula for the feeding of infants shall be prescribed by a physician.

(*c*) The dietary for children shall include at least one pint of whole milk daily for each child, as well as fresh vegetables, butter and fruits.

(*d*) Each child or inmate shall have a separate bed furnished with sheets and other adequate bedding. Four hundred (400) cubic feet of air space shall be provided for each occupant of a sleeping room, and the bed shall be a reasonable height from the floor to admit a free circulation of air. Each bed shall have a good spring and comfortable mattress and pad, well protected when necessary.

(*e*) No child shall be permitted to sleep in the living or dining room, or any other room used by the family.

(*f*) Individual towels, washcloths, comb, tooth brushes, drinking cup or sanitary bubbling fountain shall be provided and each child instructed in their use.

(*g*) Each child must be inspected on admission, and if suspicious signs of contagious diseases are noted must be placed in a room and kept apart from the others.

(*h*) Children shall have no routine work other than school tasks, but there is no objection to their performing simple home duties, providing these do not interfere with ample opportunity for school and play.

(*i*) Children must be left in charge of a competent person during absence of the boarding mother. The licensee engaged in work outside of the home cannot receive a license to board children.

7. Income: Sufficient funds shall be available to provide adequate care for the occupants of the home or institution.

8. Adult Roomer or Boarder: No adult roomers or boarders shall be permitted.

The secretary advised a writ of mandamus in the name of the state of Kansas had been filed in the district court to compel the State Board of Health to issue a license to the Florence Crittenden Home (Colored), of Topeka.

On motion, which was seconded and carried, the secretary was authorized to employ an attorney to represent the Board in the hearing.

There being no further buiness, adjournment was made at 4:45 p. m.

The following bills were audited and allowed:

Dr. C. A. McGuire	$5.00
Dr. A. J. Anderson	7.40
Dr. George I. Thacher	21.00
Dr. Charles W. Robinson	8.66
Dr. J. H. Henson	37.34
Dr. Anna Perkins	27.84

Earle G. Brown, M. D., *Secretary and Executive Officer.*

Minutes of the Second Quarterly Meeting, 1930.

The second quarterly meeting of the Kansas State Board of Health was held in the office of the secretary at Topeka, December 19, 1930. Members of the Board present included: Doctors McGuire, Aldrich, Perkins, Thacher and Robinson. A quorum being present, the meeting was called to order at 10:15 a. m.

Minutes of the meeting of September 19, 1930, were read and with amendments were accepted and ordered placed on file.

Reports were received as follows: Report of secretary, Divisions of Child Hygiene, Communicable Diseases, Food and Drugs, Coöperative County Health Work, Public Health Laboratory, Sanitation, Vital Statistics, and Venereal Diseases.

A. E. Finch, mayor, and Glenn Young, commissioner of finance, both of the city of Herington, appeared before the Board and requested a two-year period of time elapse before the Board require construction of a new disposal plant.

The following resolution was then adopted by unanimous vote of the board:

"Whereas, The city of Herington, Kan., is discharging partially treated sewage through an inadequate and antiquated sewerage-treatment plant into surface waters of the state; and

"Whereas, Such discharged sewage has been the cause of complaints to the State Board of Health, which complaints have been found to be justified and real upon investigation by representatives of the Board:

"*Therefore,* By virtue of the authority vested in the State Board of Health under chapter 65, article 164, Revised Statutes of 1923, and chapter 239, Session Laws of 1927, and chapter 111, Session Laws of 1929, the State Board of Health finds that a public nuisance exists at Herington caused by the lack of proper disposal works and the resulting discharge of partially treated sewage into the surface waters of the state, and that such waters are being polluted in a manner prejudicial to the health of the citizens of the state and detrimental to the aquatic life of the state, and it is hereby ordered that the city of Herington reconstruct anew such a sewage-treatment works as may be necessary to abate the conditions creating the nuisance caused by the discharge of the partially

treated sewage; the plans and specifications for this work to be submitted to the Board of Health for approval on or before July 1, 1932, and that the treatment works be completed and in operation by March 1, 1933."

On motion, which was seconded and carried, the Division of Sanitation was authorized to coöperate with the Forestry, Fish and Game Commission in working on stream pollution or other work as specified in chapter 239, Session Laws of 1927.

There being no further business, adjournment was made.

The following bills were audited and allowed:

Dr. C. A. McGuire	$5.00
Dr. H. L. Aldrich	25.00
Dr. Anna Perkins	27.84
Dr. Charles W. Robinson	8.66
Dr. George I. Thacher	21.00

EARLE G. BROWN, M. D., *Secretary and Executive Officer.*

Minutes of the Special Meeting, January 28, 1931.

A special meeting of the State Board of Health was held in the office of the secretary at Topeka, January 28, 1931. The following members of the Board were present: Doctors McGuire, Aldrich, Perkins, Thacher, Henson, Coburn, Robinson, Jenney, and Mr. Corson. A quorum being present, the meeting was called to order at 10:15 a.m.

A communication was read from Dr. W. F. Cogswell, secretary of the Montana State Board of Health, in regard to spotted fever, or tick fever. The following resolution was introduced for consideration of the Board members:

"WHEREAS, For the past twenty-eight years the state of Montana has been actively engaged in the study and control of Rocky Mountain spotted fever and other tick-borne diseases at an expenditure of approximately $300,000, and in 1928 erected a new and modern laboratory at Hamilton, Mont., at a cost of $60,000, without financial aid from the other infected states; and

"WHEREAS, The Bureau of the Public Health Service, coöperating with the state of Montana, has discovered and is making an effective vaccine from a highly virulent local strain of ticks and with enlarged facilities could increase the production of this vaccine to meet the growing demand; and

"WHEREAS, The Montana State Board of Entomology is engaged in the use of imported tick parasites and believes that the use of such parasites offers the most practical and most promising method of control of ticks; and

"WHEREAS, The problem of ticks and of the human diseases which they transmit is not a local one affecting Montana only, but affects as well the following states: Washington, Oregon, Idaho, Colorado, Wyoming, Utah, California and Nevada, and is threatening the adjoining states of North Dakota, South Dakota, Nebraska and New Mexico and is a potential menace to all of the states of the Union; and

"WHEREAS, The Public Health Service has for many years been engaged in the study of this group of tick-borne diseases; and

"WHEREAS, It is the expressed desire of the state of Montana that this work be turned over to the Bureau of the Public Health Service: Therefore,

"Be it resolved, That the Surgeon General, of the Bureau of the Public Health Service, be requested to take over and assume full control of investigations of tick-borne human diseases and of the control of ticks by parasites; and

"Be it further resolved, That congress be requested to pass an act authorizing the Bureau of the Public Health Service to take over the laboratory located at Hamilton, Mont., and extend the scope of the work as may be deemed necessary by the Surgeon General of the Public Health Service."

Following a discussion of the problem of tick fever, the resolution was adopted by unanimous vote and the secretary instructed to forward a copy to the Surgeon General of the United States Public Health Service.

Mr. Boyce presented for consideration of the Board a proposed bill drawn by the attorney-general's office, said bill providing for building, operating and maintaining sewage-disposal works in any city, and repealing chapter 126, Session Laws of 1927, and chapters 111 and 123, Session Laws of 1929. On motion, which was carried unanimously, the proposed act was given approval of the Board.

There being no further business, adjournment was made at 3:30 p. m.

The following bills were audited and allowed:

Dr. Chas. W. Robinson	$8.60
Dr. Geo. I. Thacher	21.00
Dr. C. A. McGuire	5.00
Dr. C. E. Coburn	9.00
Dr. H. L. Aldrich	25.00
Dr. J. H. Henson	35.05
Dr. C. M. Jenney	17.58

EARLE G. BROWN, M. D., *Secretary and Executive Officer.*

Minutes of the Third Quarterly Meeting, 1931.

The third quarterly meeting of the State Board of Health was held in the office of the secretary at Topeka, March 27, 1931. The following members of the Board were present: Doctors McGuire, Aldrich, Henson, Coburn, Thacher, Eilerts and Jenney. A quorum being present, the meeting was called to order at 10:15 a. m.

Minutes of the second quarterly meeting held on December 19, 1930, as amended, were approved and ordered placed on file. The minutes of the special meeting held on January 28, 1931, were approved and ordered placed on file.

Division reports were received as follows: Secretary's report, Divisions of Venereal Diseases, Child Hygiene, Communicable Diseases, Vital Statistics, County Health Work, Food and Drugs, Sanitation and the Public Health Laboratory.

Following presentation of the report of the Division of Child Hygiene there was a discussion in regard to certain reported violations of the law governing children's homes. Doctor Montgomery was instructed by the president to make an investigation of such homes at Wichita, and if there were flagrant violations to make prosecutions.

There followed a discussion concerning the question of sewage disposal for Dodge City, after which a resolution was introduced:

"WHEREAS, The city of Dodge City is at present discharging the sewage waste of the city untreated into the Arkansas river; and

"WHEREAS, The low flow of the Arkansas river is not sufficient to provide disposal by dilution without creating a nuisance; and

"WHEREAS, Evidence placed before the State Board of Health and investigations made show that during periods of low flow in the Arkansas river there exists as the result of the discharge of untreated sewage from Dodge City, a nuisance and a menace to health:

"*Therefore,* By virtue of the authority invested in the State Board of Health

under chapter 65, article 164, Revised Statutes of 1923, the said Board finds that a nuisance does exist by reason of the disposal of untreated sewage into the Arkansas river by the city of Dodge City, so that the river has been and is being polluted in a manner prejudicial to the health and comfort of the citizens of the state, and hereby orders that the city of Dodge City construct such sewers and sewage-treatment works as may be necessary to abate the existing nuisance, the plans and specifications for such work to be submitted to the State Board of Health in accordance with the provisions of the above-named statute on or before September 1, 1931, and construction be completed by April 1, 1932."

The foregoing resolution was adopted by unanimous vote of the Board.

Mr. Boyce discussed cross connections in hospitals and mentioned specific examples where infections had developed following the use of polluted water.

On motion, which was carried unanimously, Mr. Boyce was instructed to make an investigation of cross connections in various hospitals and report his findings to the Board.

The report of the investigation of typhoid fever cases in Fort Scott in December was presented for the consideration of the Board.

No further business appearing, adjournment was made at 4:15 p.m.

The following bills were audited and allowed:

Dr. C. A. McGuire	$5.00
Dr. C. E. Coburn	9.00
Dr. H. L. Aldrich	25.00
Dr. George I. Thacher	21.00
Dr. W. J. Eilerts	30.54
Dr. J. H. Henson	41.03
Dr. C. M. Jenney	19.89

EARLE G. BROWN, M. D., *Secretary and Executive Officer.*

Minutes of the Annual Meeting, 1931.

The annual meeting of the State Board of Health was held in the office of the secretary at Topeka, June 26, 1931. The following Board members were present: Doctors McGuire, Aldrich, Henson, Coburn and Robinson. A quorum being present, the meeting was called to order by President McGuire at 11 a.m.

Minutes of the third quarterly meeting, held on March 27, 1931, were approved and ordered placed on file.

The following reports were received: Secretary's report; Divisions of Communicable Diseases, Coöperative County Health Work; Child Hygiene; Sanitation; Venereal Diseases; Food and Drugs; Vital Statistics, and the Public Health Laboratory.

A motion was unanimously adopted directing the secretary to make request of the Surgeon General of the United States Public Health Service for the detail of a member of that service to make a survey of the Kansas State Board of Health.

The subject of an increase of salaries of the personnel in the laboratory was discussed, and on motion, which was carried, the president and secretary were authorized to adjust the salaries.

A motion was unanimously adopted instructing Mr. Boyce to prepare a

resolution in regard to salt-water pollution of Kansas streams, and to present same for early consideration of the Board.

A motion was unanimously adopted instructing the secretary to communicate with the mayor and city commissioners of Council Grove and El Dorado and ascertain from them what action is contemplated in regard to improvements of the water plants.

Doctor McGuire was reëlected as president and Doctor Aldrich as vice president of the Board.

The following appointments were confirmed by the Board for a one-year term, effective July 1, 1931:

Thomas I. Dalton, Ph. C., assistant chief food and drug inspector.

J. C. Montgomery, M. D., director, Divisions of Child Hygiene and Coöperative County Health Work.

C. H. Kinnaman, M. D., epidemiologist.

Helen M. Boyd, assistant state registrar of vital statistics.

Charles C. Dills, B. S., assistant engineer.

The name of W. J. Davies was submitted for appointment as state registrar of vital statistics for a four-year term, effective July 1, 1931. The appointment was confirmed by the Board.

No further business appearing, adjournment was made at 4:30 p. m.

The following bills were audited and allowed.

Dr. C. A. McGuire	$5.00
Dr. H. L. Aldrich	32.28
Dr. Chas. W. Robinson	13.16
Dr. C. E. Coburn	14.03
Dr. J. H. Henson	38.39

EARLE G. BROWN, M. D., *Secretary and Executive Officer.*

Minutes of the First Quarterly Meeting, 1931.

The first quarterly meeting of the State Board of Health was held in the office of the secretary at Topeka, September 25, 1931. The following members of the Board were present: Doctors Aldrich, Perkins, Eilerts, Coburn, Thacher, Jenney, Robinson, and Mr. Corson. A quorum being present, the meeting was called to order by Vice President Aldrich at 10:15 a. m.

Minutes of the annual meeting held on June 26, 1931, were read, approved and ordered placed on file.

The following reports were received: Secretary's report, Divisions of Sanitation, Communicable Diseases, Venereal Diseases, Child Hygiene, Coöperative County Health Work, Food and Drugs, Vital Statistics, and the Public Health Laboratory.

On motion, which was adopted by unanimous vote of the Board, Mr. Boyce was given a leave of absence during the coming school year to attend Harvard University for a postgraduate course, on a fellowship granted by the Rockefeller Foundation.

By unanimous vote of the Board, R. E. Lawrence, assistant engineer, was named as acting engineer during the period of Mr. Boyce's absence. Allen Wymore was named as assistant engineer.

Mr. Boyce commented on the need for continued investigations of hospital

sterilizing equipment, and on motion, which was unanimously adopted, Mr. Lawrence was instructed to carry on such work.

Mr. Boyce presented certain correspondence from the Wichita Health Protective Club and a copy of his reply. By unanimous vote of the Board the reply was approved.

The Board authorized Mr. Lawrence to suspend routine chemical examinations of city water supplies, if necessary, in order to continue work in the determination of fluoride content of certain supplies.

The following resolution was adopted by unanimous vote of the Board:

"WHEREAS, The Council Grove water-purification plant is found by inspection to be in a badly deteriorated condition; and

"WHEREAS, Major improvements will be necessary to again place the plant in a condition that will meet the requirements of the U. S. Public Health Service for water used on interstate carriers; Therefore,

"Be it resolved, That the secretary of the State Board of Health be authorized to require the removal of the safe-water signs until after needed improvements are made, the removal of the signs to be ordered only after opportunity for a hearing for the city's representatives has been afforded."

This resolution governing the removal of signs is in compliance with the purchase agreement with the city at the time the signs were erected.

The following resolution was adopted by unanimous vote of the Board:

"WHEREAS, The present water-treatment plant at Fort Scott is in need of major improvements, including better chemical treatment control, mixing and filtration; and

"WHEREAS, The State Board of Health has repeatedly urged and recommended that these improvements be made, and has not regarded the present works as adequate; Therefore,

"Be it resolved, That it is the opinion of the Board that this supply does not at present meet the requirements of the standards of the United States Public Health Service for water used on interstate carriers; and

"Be it further resolved, That the city of Fort Scott be required to remove the approved water supply signs until necessary improvements in the water purification plant are made, the removal of the signs being in compliance with the purchase agreement at the time the signs were erected."

On the recommendation of Mr. Boyce the resolution in regard to the automatic water filter adopted at the third quarterly meeting, 1931, was stricken from the records. The following resolution was adopted by unanimous vote of the Board:

"WHEREAS, There has appeared upon the market a small sand filter to be attached to a water faucet, this filter being manufactured by the Automatic Water Filter Company, of Milwaukee, Wis.; and

"WHEREAS, Misleading and false statements have been made regarding the efficiency of this filter for the removal of turbidity and pollution in water; and

"WHEREAS, Such misleading statements are prone to create a feeling of false security on the part of water users which might result in the use of dangerously polluted water, creating a condition detrimental to public health: Therefore,

"Be it resolved, That the Board of Health respectfully submit to the Postmaster General the laboratory findings and investigations, copies of which are attached, regarding the efficiency of said water filter, and request that if the Postmaster General finds that erroneous and misleading statements are being published regarding this filter, and passed through the United States mails, that the advertising of the said filter company be prohibited from the mails."

On motion, which was unanimously carried, the following remarks by the secretary in regard to Mr. Boyce were made a part of the proceedings of the meeting: "We are sorry Mr. Boyce is leaving, but he is leaving the division in good hands, and we rather envy him the postgraduate course. Mr. Boyce has kept very close to the department, has been coöperative at all times and undertaken a lot of work that has been necessary, but not compulsory. The research work he and his assistants have carried on has been tremendous. The mottled enamel survey is a very valuable piece of work. I just want to thank him and extend to him our good wishes in his new work."

Dr. J. L. Lattimore, of the Lattimore Laboratories, Topeka, met with the Board and discussed the possibility of the Board licensing such laboratories.

On motion, which was adopted by unanimous vote, Doctor Lattimore, Mr. Hofmann and the secretary were named as a committee to investigate laboratories doing public health work in the state and devise plans for regulating and licensing such laboratories, and report at the next meeting.

The following letter was written Doctor McGuire, president of the Board, ill at Stormont hospital. On motion, the letter was made a part of the proceedings of the meeting:

TOPEKA, KAN., September 25, 1931.

To President C. A. McGuire:

This is to tell you that we have missed you at our meeting to-day. Please don't let this occur again. We are glad you are better and all wish you the speediest recovery.

When we come again, we hope to see you in your accustomed chair at the head of the table. Your friends,

W. J. EILERTS, M. D.
H. L. ALDRICH, M. D.
ANNA PERKINS, M. D.
C. M. JENNEY, M. D.
CHAS. W. ROBINSON, M. D.
GEO. I. THACHER, M. D.
C. E. COBURN, M. D.
D. H. CORSON, LL. B.
EARLE G. BROWN, M. D.

A new card for the return of certain notifiable diseases was presented by Doctor Kinnaman and approved by the Board:

RETURN OF NOTIFIABLE DISEASE.

Chickenpox..... Measles..... Mumps..... Whooping Cough..... Influenza.....

Name of Persons	*Age*	*Sex*	*Date of Onset*

Number in household: Adults..... Children.....

Color..... P. O. address.....

Reporting physician.....

Post office address.....

NOTE.—This card is to be used for reporting multiple cases in families. Please check mark after disease reported.

No further business appearing, adjournment was made at 4:15 p.m.
The following bills were audited and allowed:

Dr. H. L. Aldrich	$31.95
D. H. Corson	13.16
Dr. W. J. Eilerts	37.71
Dr. C. M. Jenney	22.00
Dr. Geo. I. Thacher	17.00
Dr. C. E. Coburn	13.66
Dr. Chas. W. Robinson	13.16
Dr. Anna Perkins	29.52

EARLE G. BROWN, M. D., *Secretary and Executive Officer.*

Minutes of the Second Quarterly Meeting, 1931.

The second quarterly meeting of the State Board of Health was held in the office of the secretary at Topeka, December 22, 1931. The following members of the Board were present: Doctors Aldrich, Perkins, Hooper, Coburn, Thacher and Robinson. A quorum being present, the meeting was called to order by Vice President Aldrich at 10:15 a.m.

Minutes of the first quarterly meeting, held September 25, 1931, were read, approved as amended and ordered placed on file.

Division reports were received: Secretary's report; Divisions of Vital Statistics, Venereal Diseases, Sanitation, Communicable Diseases, Food and Drugs, Child Hygiene, Coöperative County Health Work, and the Public Health Laboratory.

There was presented for consideration a resolution in regard to the depth at which dead bodies should be buried. Following a discussion of the proposed regulation, it was decided the consideration of same should be held over until the March meeting and further investigation could be made of similar requirements made by other states.

The following resolution was adopted by unanimous vote of the Board:

"WHEREAS, The State Board of Health was created by an act of the legislature in 1885, and is charged with the general supervision of the health of the citizens of the state, and is expected to make intelligent study into the causes of sickness and death, to make investigations and inquiry concerning the causes of diseases, and especially in the control of epidemics, to make such laws, rules and regulations as are necessary for the protection of the public health;

"*Be it resolved,* That the State Board of Health appreciates the importance of the work being done by the public health nurses of the state and desire to secure a better knowledge of their work in the field;

"*Be it further resolved,* That they be requested to submit a monthly report of all their public health activities to the State Board of Health on blanks furnished by said Board."

The following resolution was adopted by unanimous vote of the Board:

"WHEREAS, Owing to lack of sewerage facilities and the inability by other means to dispose of the sewage from Auld Home, which is a part of the property of the Baptist Theological Seminary located in Kansas City, Kan., untreated domestic sewage is permitted to overflow onto the ground; and

"WHEREAS, Investigations by the State Board of Health have found that

such discharge of untreated sewage constitutes a nuisance and menace to public health; and

"WHEREAS, The city has failed to provide the necessary sewers for the elimination of this nuisance and menace to public health;

"*Be it therefore resolved,* That, by authority vested in the State Board of Health, the city of Kansas City, through its duly elected and appointed officials, be ordered to construct the necessary sewers for the abatement of the nuisance and menace to public health above mentioned."

The following resolution was adopted by unanimous vote of the Board:

"WHEREAS, The Council Grove water-purification plant is found by inspection to be in a badly deteriorated condition; and

"WHEREAS, Major improvements will be necessary to again place the plant in a condition that will meet the recommended requirements of the United States Public Health Service for water used on interstate carriers; and

"WHEREAS, The city of Council Grove, through its duly elected and appointed officials, has failed to definitely state when the necessary major improvements to the water purification plant will be completed; therefore,

"*Be it resolved,* That the city be ordered to remove the safe-water highway markers in accordance with the terms of the purchase agreement between the State Board of Health and the city of Council Grove, until after the needed improvements to the water-purification plant have been made."

The following resolution was adopted by unanimous vote of the Board:

"WHEREAS, There exists in the cities of Sawyer and Bloom small privately owned water supplies which are furnishing water to a limited number of customers as a matter of convenience and without a franchise; and

"WHEREAS, The yearly revenue realized by the owners of these supplies is not sufficient to justify the payment of the minimum annual fee of $12.50, which is fixed by regulation for the services of the water and sewage laboratory for cities of this size; therefore,

"*Be it resolved,* That the State Board of Health take cognizance of the limitations of these supplies and in lieu of the regular annual service the water and sewage laboratory will complete two bacteriological analyses yearly, for which the owner will be assessed at the rate of $2 per analysis, this being the fee fixed for a single bacteriological analysis of a private supply."

The secretary was instructed by the Board to communicate with the chairman of the program committee of the Kansas Medical Society and request Mr. Lawrence be given a place on the program of the annual meeting to discuss the result of the investigation in regard to the defects in hospital sterilizing apparatus.

Mr. Dalton discussed the milk situation in Topeka. The secretary read the communication addressed to the city commissioners under date of July 7, 1931, in regard to findings of the inspectors and also the recommendations which were made in regard to improving the milk supply.

On motion, which was unanimously adopted, the secretary was authorized to make public the letter written July 7, 1931, inasmuch as the Board considered the recommendations made were not unreasonable and that the recommendations had not been complied with.

The laboratory committee presented their report, stating the attorney-general had given as his opinion laboratories could be licensed by the State Board of Health, under regulations adopted by the Board. The committee further recommended a committee be appointed to draft such regulations and submit for the Board at some future meeting.

The report of the committee was accepted and on motion, which was adopted by unanimous vote, the committee as appointed was authorized to submit such regulations at a future meeting of the Board.

The report of the Henrietta Brown Tuberculosis Research was read by the secretary. The report was approved and ordered filed.

No further business appearing, adjournment was made at 3:30 p.m.

The following bills were audited and allowed:

Dr. H. L. Aldrich	$32.00
Dr. C. L. Hooper	43.87
Dr. C. E. Coburn	13.76
Dr. Geo. I. Thacher	17.00
Dr. Chas. W. Robinson	12.92
Dr. Anna Perkins	29.52

EARLE G. BROWN, *Secretary and Executive Officer.*

Minutes of the Third Quarterly Meeting, 1932.

The third quarterly meeting of the State Board of Health was held in the office of the secretary at Topeka on March 25, 1932. The following members of the Board were present: Doctors Aldrich, Coburn, Lattimore, Henson, Hooper, Robinson, Perkins, and Thacher. A quorum being present, the meeting was called to order at 9:15 by Vice President Aldrich.

The following reports were received: Report of the secretary; Divisions of Child Hygiene; Coöperative County Health Work; Communicable Diseases; Venereal Diseases; Food and Drugs; Public Health Laboratory; and Sanitation.

Letters extending an invitation for the Henrietta Brown Tuberculosis Research to locate in Rice county for the year 1932-'33 were read from the following organizations: Rice County Sunday School Association; Rice County Council of Women's Clubs; Rice County Farm Bureau; Lyons Chamber of Commerce; Associated Charities; Rice County School Boards Association; County Clerk and Hon. E. H. Hodgson, representative seventy-ninth district, Little River, Kan.

The Board by unanimous vote authorized the members of the Board to attend the annual school for health officers and public health nurses.

The name of C. L. Miller, M.D., was presented to the Board with a recommendation that he be appointed as state registrar of vital statistics to succeed Wm. J. Davies, deceased. Doctor Miller was named as state registrar of vital statistics for a four-year term beginning March 24, 1932.

On motion, which was adopted by unanimous vote, the Board set the date of April 22, 1932, to receive bids and let the contract for the purchase of biologicals.

The following resolution in regard to the El Dorado water-purification plant was adopted by unanimous vote of the Board:

"WHEREAS, The El Dorado water-purification plant is found by inspection to be in a badly deteriorated condition; and

"WHEREAS, Major improvements will be necessary to again place the plant in a condition that will meet the requirements of the United States Health Service for water used on interstate carriers; therefore

"Be it resolved, That the secretary of the State Board of Health be au-

thorized to require the removal of the safe-water signs until after needed improvements are made, the removal of the signs to be ordered only after an opportunity for a hearing for the city's representatives has been afforded."

This resolution governing the removal of signs is in compliance with the purchase agreement with the city at the time the signs were erected.

The following resolution for the analyses of water in regard to swimming pools was adopted by unanimous vote of the Board:

"WHEREAS, Requests have been received from public swimming-pool owners for routine weekly bacteriological analyses of swimming-pool water samples, to be charged for at a definite yearly rate; and

"WHEREAS, Such schedule of analyses would be of great benefit in the sanitation of public swimming pools: therefore,

"*Be it resolved,* That the following regulation be made a part of 'Regulations Governing Public Swimming Pool Sanitation' adopted at the regular quarterly meeting of the State Board of Health under date of September 17, 1925:

> "'At the option of the swimming pool owner, a sample of the swimming-pool water may be submitted each week to the Water and Sewage Laboratory of the State Board of Health for bacteriological examination.
>
> "'For this service, a fee of thirty dollars ($30) per year will be charged indoor owners, and a fee of fifteen dollars ($15) for six months or less, will be charged outdoor pool owners; the thirty-dollar fee to be payable to the water and sewage laboratory, University of Kansas, Lawrence, Kan., the first of January of each year, and the fifteen-dollar fee to be payable at the beginning of the swimming season.'"

A representative of the American continuous towel cabinet was present and demonstrated the cabinet to the members of the Board.

By unanimous vote the Board members instructed the secretary to confer with the attorney-general and draft rules and regulations in regard to the continuous towel cabinet and to give further consideration to this subject at the special meeting set for April 22.

City Engineer J. E. White and Glenn Young, commissioner of finance of the city of Herington, appeared before the Board in behalf of the city officials of Herington and requested an extension of time to complete the disposal plant for that city.

By unanimous vote of the Board the following resolution was adopted in regard to an extension of time for completion of the Herington disposal plant.

"*Resolved,* That the city of Herington be required to file preliminary plans for the construction of sewage-treatment works on or before July 1, 1932, and that an extension of one year be granted for the filing of completed plans, and the plant to be completed and in operation on or before March 1, 1934."

There followed a discussion in regard to the milk sanitation program undertaken in the state of Kansas. Correspondence was presented from the Public Health Service advising Kansas had been included in the states adopting the standard milk ordinance.

Recommendation was made that the Board approve the standard milk ordinance, which approval was given by unanimous vote of the Board.

Further recommendation was made that certain regulations in regard to the sale of milk and milk products be adopted, the attorney-general having previously advised the State Board of Health had authority to adopt these standards. The following regulations were adopted by unanimous vote:

"WHEREAS, Various municipalities in the state of Kansas have adopted or will adopt ordinances to regulate their milk supply; and

"WHEREAS, It is common knowledge that there is no uniformity in these various ordinances providing for uniform definitions for milk and milk products or inspection of production thereof; and

"WHEREAS, The United States Public Health Service and the Bureau of Dairy Industry of the United States Department of Agriculture have approved and adopted a model milk ordinance, and which in turn has been adopted by some 450 cities in some 26 states of the United States; and

"WHEREAS, At the annual conference of the Kansas State and Municipal Dairy Inspectors it was requested that the Kansas State Board of Health approve and adopt the model milk ordinance: therefore,

"Be it resolved, That the model milk ordinance be approved and adopted by the Kansas State Board of Health: and

"Be it further resolved, That the model milk ordinance be recommended to the cities of Kansas to be used by them in the supervision of their milk supplies: and

"Be it further resolved, That the following definitions of milk and milk products are hereby adopted as regulations of the Kansas State Board of Health, said definitions conforming to those approved and adopted by the United States Public Health Service and the Bureau of Dairy Industry of the United States Department of Agriculture, as set out in their model milk ordinance above referred to."

There being no further business, adjournment was made at 4:45 p.m.

The following bills were audited and allowed:

Dr. C. E. Coburn	$13.66
Dr. J. H. Henson	38.99
Dr. H. L. Aldrich	32.30
Dr. Chas. W. Robinson	13.90
Dr. J. L. Lattimore	16.96
Dr. C. L. Hooper	51.50
Dr. Geo. I. Thacher	22.00
Dr. Anna Perkins	31.52

EARLE G. BROWN, M. D., *Secretary and Executive Officer.*

Special Meeting, 1932.

A special meeting of the State Board of Health was held in the office of the secretary at Topeka on April 22, 1932. The following members of the Board were present: Doctors Coburn, Robinson, Lattimore, Aldrich, Jenney, Henson and Thacher. A quorum being present, the meeting was called to order at 10:30 a.m. by Vice President Aldrich.

The following biological companies submitted price lists for biologicals to be furnished to the Kansas State Board of Health: Eli Lilly and Company; E. R. Squibb & Sons; National Drug Company; U. S. Standard Products Company; the Gilliland Laboratories, Inc., Sharp & Dome; Parke, Davis & Company; Lederle Laboratories.

By unanimous vote of the Board the contract was awarded to E. R. Squibb & Sons for one year with the privilege of renewal for one year at the option of the Board.

There followed consideration of the question of the American continuous

towel cabinet. After a discussion two resolutions were adopted by unanimous vote as follows:

"Now, to wit, on this 22d day of April, 1932, the Kansas State Board of Health, sitting in special session and for the purpose, among other things, to consider the use of continuous towel cabinets in certain public buildings and certain public places within the state of Kansas, and after being full and well advised in the premises as to the use of said towels in the following-named places, it is by unanimous action of said Board,

"*Resolved,* That the use of automatic, continuous towel cabinet be, and the same is hereby prohibited by the Kansas State Board of Health in the places hereinafter set out, for the reason that said towel system cannot be used in a sanitary and healthful manner and that such use would be in violation of the sanitation and health rules and regulations of the Kansas State Board of Health:

"1. In wash rooms which are open to the use of the general public in city-owned buildings of the several cities of the state of Kansas.
"2. In wash rooms used by the general public in the courthouses of the several counties of the state of Kansas.
"3. In the wash rooms used by the general public in the statehouse of the state of Kansas, located at Topeka, Kan.
"4. In the wash rooms used by the general public which are maintained in the filling stations located in the state of Kansas."

The above and foregoing resolution approved and adopted in special session this 22d day of April, 1932, at Topeka, Kan.

THE KANSAS STATE BOARD OF HEALTH.

"*Be it resolved,* By the Kansas State Board of Health, that the resolution passed by said Board on March 15, 1929, which prohibited the use of the American continuous towel cabinets in public places in the state of Kansas be, and the same is hereby, rescinded, set aside and held for naught.

"*Be it further resolved,* That the use of continuous towel cabinets which are mechanically controlled so that each user of a towel may secure a clean portion or towel by pushing a button and by so doing the soiled portion or towel is automatically drawn into a separate compartment which is locked so that it cannot be withdrawn or reused, be permitted in all suitable places within the state of Kansas, except in such public places as the Kansas State Board of Health, in the future, by official act, determine to be undesirable for the reason that the use of said cabinets in such public places violates the rules and regulations of the Kansas State Board of Health pertaining to health and sanitation.

"*Be it further resolved,* That the above and foregoing resolution shall in no wise be interpreted or considered as an approval or recommendation of any make of continuous towel cabinet, nor are the manufacturers of such continuous towel cabinets to use this resolution or any part thereof in their sales literature, or incorporate same in the printed matter attached to said towel cabinets."

The above and foregoing resolution approved and adopted in special session this 22d day of April, 1932, at Topeka, Kan.

THE KANSAS STATE BOARD OF HEALTH.

The following bills were audited and allowed:

Dr. J. H. Henson	$39.04
Dr. Geo. I. Thacher	17.00
Dr. J. L. Lattimore	5.00
Dr. H. L. Aldrich	31.00
Dr. C. E. Coburn	13.16
Dr. Chas. W. Robinson	13.40
Dr. C. M. Jenney	22.00

Annual Meeting, 1932.

The annual meeting of the State Board of Health was held in the office of the secretary at Topeka, June 30, 1932. The following members were present: Doctors Aldrich, Robinson, Coburn, Hooper, Lattimore, Thacher, Henson and Perkins. A quorum being present, the meeting was called to order at 10:15 a. m. by Vice President Aldrich.

The minutes of the third quarterly meeting held in Topeka on March 25, 1932, and the special meeting held on April 22, 1932, were read and approved and ordered placed on file.

Reports were received as follows: Secretary's report; Venereal Diseases; Communicable Diseases; Division of Sanitation; Child Hygiene; Coöperative County Health Work; Food and Drugs; Vital Statistics, and the Public Health Laboratory.

There followed a discussion in regard to conditions at Silver Lake following the draining of that body of water, and the following resolution was adopted by unanimous vote:

"WHEREAS, There occurred at Silver Lake during the summer of 1931 a nuisance resulting from the death of many tons of fish in the lake, said nuisance resulting from unsuccessful attempts to drain the lake; and

"WHEREAS, The amount of water in the lake at the present time is not sufficient to maintain fish life in the event of a prolonged period of no rainfall: therefore,

"*Be it resolved,* That it be the recommendation of the State Board of Health to the county commissioners of Shawnee county, Kansas, that action be taken to prevent the occurrence of a similar nuisance, either by the complete drainage of the lake, or by maintaining sufficient water in the lake to support fish life, or by other means."

Prosper Wilson, secretary of the State Barber Board of Examination and Inspection, presented certain proposed changes in the rules and regulations of that board which were approved by the State Board of Health.

The following resolution was adopted by unanimous vote of the Board:

"WHEREAS, The State Board of Health did, on September 19, 1930, grant the city of Wichita temporary permit to discharge untreated sewage into the surface waters of the state until September 1, 1931, at which time the preliminary part of complete treatment of sewage was to be in operation; and

"WHEREAS, Through no fault of the city of Wichita, it has required a longer time to construct said works than was anticipated; and

"WHEREAS, Said works are now nearing completion and will be in operation within the next few months: therefore,

"*Be it resolved,* That in view of the continued need for the discharge of untreated sewage, the State Board of Health hereby grant the city of Wichita temporary permit to discharge untreated sewage into the surface waters of the state until January 1, 1933."

The following resolution was adopted by unanimous vote of the Board:

REGULATIONS GOVERNING SALE OF SOFT DRINKS.

"WHEREAS, It is a known fact that beverages, carbonated or uncarbonated, mixed, flavored or colored, are often made, manufactured, displayed, sold or offered for sale, under insanitary and unwholesome conditions; and

"WHEREAS, Such beverages, mixed drinks and similar concoctions, are or may be made, manufactured, displayed, sold or offered for sale, under in-

sanitary or unwholesome conditions, such drinks may become a health menace or hazard; and

"WHEREAS, Many cases of sicknesses, as diarrhea, enteritis and other intestinal disturbances may be directly traceable to drinks made or sold as stated above: therefore,

"Be it resolved, That the following be adopted as a regulation of the Kansas State Board of Health: All mixed soft drinks or similar concoctions, whether carbonated or uncarbonated, may only be sold, offered for sale or displayed in the original sealed containers at fairs, carnivals, bazaars or other public gatherings; such original sealed containers being sterilized, cleaned, filled and sealed in buildings or rooms especially equipped for such processing and sealing."

Mr. Dalton gave a report on the investigation of ice-cream wagons in the city of Topeka, and the Board instructed further investigation should be made and report made at the September meeting, together with suggested regulations.

The following bills were audited and allowed:

Dr. H. L. Aldrich	$31.00
Dr. Chas. W. Robinson	13.40
Dr. J. L. Lattimore	5.00
Dr. C. E. Coburn	13.16
Dr. Geo. I. Thacher	18.15
Dr. J. H. Henson	38.92
Dr. C. L. Hooper	57.50
Dr. Anna Perkins	29.52

EARLE G. BROWN, M.D., *Secretary and Executive Officer.*

DIVISION REPORTS.

DIVISION OF COMMUNICABLE DISEASES.

Report for the Biennium Ending June 30, 1932.

Dear Doctor Brown—I have the honor to submit herewith the report of the Division of Communicable Diseases for the calendar years of 1930 and 1931. Statistical data concerning morbidity are tabulated by calendar years for comparative purposes with other states. Tables compiled for the first six months of 1932 bring the data to the end of the fiscal year in accordance with statutory requirement. In addition to the statistical data, this report covers the general activities of the division for the past two years.

Respectfully submitted,

C. H. Kinnaman, M. D., *Epidemiologist.*

GENERAL STATEMENT.

This division, with the assistance of 105 county health officers and twelve health officers in cities of the first class, is charged with the control of all preventable diseases occurring in the state.

That the field of preventive medicine is broadening and extending into new spheres is apparent to all well-informed health officials and sanitarians. In the early days of public health work the function of the health officer consisted chiefly in the abatement of nuisances and the establishment and maintenance of quarantine. With the discovery of the specific organisms which are the cause of certain communicable diseases and the mode of their transmission, the duties of the health officer have become of a different nature. By investigation of each case of communicable disease occurring in the community under his jurisdiction he is able to use the proper preventive measure so that the disease will not become epidemic in his community.

It is especially incumbent upon the Division of Communicable Diseases to determine what information should be disseminated to the public and to keep abreast of the times so that the local health authorities may be informed as to the various fields in which preventive measures may be profitably undertaken.

Public health records show that communicable disease epidemics have always gone hand in hand with war, earthquakes, famine, floods, storms and periods of depression. Whenever the general resistance of the human race is lowered the susceptibility to attacks of infectious and contagious diseases is increased. Any undue retrenchment in health work will be paid for in dollars and cents and also in the impairment of the people's health.

Too great economy as far as health is concerned, because of the current depression, is particularly dangerous to the welfare of children. Every health department operated in an efficient manner prevents diseases dangerous to

the public health of that community. Every county board of health should give careful consideration to their budgets for the health department at this time, as any lowering of the standards will result in increased morbidity and mortality from preventable diseases. Under present conditions the full-time county unit plan is the most economical and efficient method of health administration.

This division wishes to express its appreciation to the health authorities and physicians of the state for their assistance in the control of communicable diseases during the past two years.

The personnel of the division is as follows: Epidemiologist, Clarence H. Kinnaman, M.D.; biological and statistical clerk, Miss Anna Louise Coates; stenographer, Miss Evelyn I. Ford.

COUNTY HEALTH OFFICERS.

	County.	*Name and address.*
1.	Allen	A. R. Chambers, M. D., Iola.
2.	Anderson	John Nicholas Carter, M. D., Garnett.
3.	Atchison	C. W. Robinson, M. D., Atchison.
4.	Barber	Hardin Gilbert, M. D., Medicine Lodge.
5.	Barton	Addison Kendall, M. D., Great Bend.
6.	Bourbon	W. S. Gooch, M. D., Fort Scott.
7.	Brown	Claude P. Fryer, M. D., Hiawatha.
8.	Butler	R. J. Cabeen, M. D., Leon.
9.	Chase	M. W. Woodhull, M. D., Cottonwood Falls.
10.	Chautauqua	W. L. McNaughten, M. D., Sedan.
11.	Cherokee	J. Dale Graham, M. D., Columbus.
12.	Cheyenne	E. R. Beiderwell, M. D., Bird City.
13.	Clark	Harold O. Closson, M. D., Ashland.
14.	Clay	E. N. Martin, M. D., Clay Center.
15.	Cloud	A. M. Townsdin, M. D., Jamestown.
16.	Coffey	H. T. Salisbury, M. D., Burlington.
17.	Comanche	Fred L. Holcomb, M. D., Coldwater.
18.	Cowley	F. A. Kelley, M. D., Winfield.
19.	Crawford	G. L. Millington, M. D., Girard.
20.	Decatur	O. O. Taylor, D. O., Oberlin.
21.	Dickinson	C. H. Munger, M. D., Abilene.
22.	Doniphan	John G. Swails, M. D., Wathena.
23.	Douglas	E. R. Keith, M. D., Lawrence.
24.	Edwards	F. E. Loose, D. O., Lewis.
25.	Elk	J. A. Archer, M. D., Grenola.
26.	Ellis	Gerard C. Unrein, M. D., Hays.
27.	Ellsworth	Geo. F. Davis, M. D., Kanopolis.
28.	Finney	H. C. Sartorius, M. D., Garden City.
29.	Ford	C. L. Hooper, M. D., Dodge City.
30.	Franklin	J. F. Barr, M. D., Ottawa.
31.	Geary	H. R. Ross, M. D., Junction City.
32.	Gove	R. L. Ruttan, D. O., Grainfield.
33.	Graham	I. B. Parker, M. D., Hill City.
34.	Grant	H. H. Miner, M. D., Ulysses.
35.	Gray	E. D. Dellinger, M. D., Cimarron.
36.	Greeley	L. L. Hubener, M. D., Tribune.
37.	Greenwood	J. G. Walker, M. D., Eureka.
38.	Hamilton	C. B. Grissom, M. D., Syracuse.
39.	Harper	C. E. Ressler, M. D., Anthony.
40.	Harvey	F. G. Bartel, M. D., Newton.
41.	Haskell	E. E. English, D. O., Sublette.
42.	Hodgeman	W. M. Sterrett, M. D., Jetmore.
43.	Jackson	E. W. Reed, M. D., Holton.

44.	Jefferson	J. M. Marks, M. D., Valley Falls.
45.	Jewell	S. B. Dykes, M. D., Esbon.
46.	Johnson	R. L. Moberly, M. D., Olathe.
47.	Kearny	G. R. Hastings, M. D., Lakin.
48.	Kingman	C. W. Longenecker, M. D., Kingman.
49.	Kiowa	J. A. McLaughlin, M. D., Greensburg.
50.	Labette	O. E. Stevenson, M. D., Oswego.
51.	Lane	Edwin P. Deal, M. D., Dighton.
52.	Leavenworth	Charles E. Brown, M. D., Leavenworth.
53.	Lincoln	C. E. Mitchell, D. O., Lincoln.
54.	Linn	L. D. Mills, M. D., Mound City.
55.	Logan	C. M. Miller, M. D., Oakley.
56.	Lyon	J. S. Fulton, M. D., Emporia.
57.	Marion	J. H. Saylor, M. D., Marion.
58.	Marshall	H. H. Haerle, M. D., Marysville.
59.	McPherson	G. R. Dean, M. D., McPherson.
60.	Meade	William F. Fee, M. D., Meade.
61.	Miami	L. A. VanPelt, M. D., Paola.
62.	Mitchell	E. C. Carrico, D. O., Beloit.
63.	Montgomery	E. C. Wickersham, M. D., Independence.
64.	Morris	Chas. W. Hall, M. D., Burdick.
65.	Morton	W. V. Tucker, M. D., Elkhart.
66.	Nemaha	F. S. Deem, M. D., Oneida.
67.	Neosho	A. M. Garton, M. D., Chanute.
68.	Ness	Thos. S. Venard, M. D., Ness City.
69.	Norton	Grace G. Tinney, M. D., Norton.
70.	Osage	C. W. Beasley, M. D., Lyndon.
71.	Osborne	J. E. Henshall, M. D., Osborne.
72.	Ottawa	W. B. Beach, M. D., Delphos.
73.	Pawnee	Justin A. Blount, M. D., Larned.
74.	Phillips	H. H. Johnson, M. D., Kirwin.
75.	Pottawatomie	L. W. Cazier, M. D., Wamego.
76.	Pratt	Herbert Atkins, M. D., Pratt.
77.	Rawlins	W. C. McIrvin, M. D., Atwood.
78.	Reno	L. O. Forney, M. D., Hutchinson.
79.	Republic	M. D. McComas, M. D., Courtland.
80.	Rice	J. M. Little, M. D., Sterling.
81.	Riley	John R. Mathews, M. D., Manhattan.
82.	Rooks	H. C. Brown, M. D., Stockton.
83.	Rush	J. H. Baker, M. D., La Crosse.
84.	Russell	C. J. Cramm, M. D., Russell.
85.	Saline	S. T. Blades, M. D., Salina.
86.	Scott	R. F. Kippenberger, M. D., Scott City.
87.	Sedgwick	C. R. Hepler, M. D., Wichita.
88.	Seward	E. J. McCreight, M. D., Liberal.
89.	Shawnee	F. E. McCord, M. D., Topeka.
90.	Sheridan	J. S. Potekin, M. D., Hoxie.
91.	Sherman	E. J. Beckner, M. D., Goodland.
92.	Smith	V. E. Watts, M. D., Smith Center.
93.	Stafford	J. C. Ulrey, M. D., St. John.
94.	Stanton	John Allen, M. D., Johnson.
95.	Stevens	G. R. McCreery, M. D., Hugoton.
96.	Sumner	L. H. Sarchet, M. D., Wellington.
97.	Thomas	James Lloyd Jenson, M. D., Colby.
98.	Trego	W. Y. Herrick, M. D., Wakeeney.
99.	Wabaunsee	F. J. Wagner, M. D., McFarland.
100.	Wallace	Hugo E. Nelson, M. D., Sharon Springs.
101.	Washington	H. D. Smith, M. D., Washington.
102.	Wichita	J. F. White, M. D., Leoti.
103.	Wilson	W. H. Young, M. D., Fredonia.
104.	Woodson	M. S. Reynolds, M. D., Yates Center.
105.	Wyandotte	Robt. Lucas, M. D., Kansas City.

CITY HEALTH OFFICERS, FIRST-CLASS CITIES.

1. Atchison: C. W. Robinson, M. D.
2. Coffeyville: A. Boese, M. D.
3. Fort Scott: C. L. Mosley, M. D.
4. Hutchinson: G. R. Walker, M. D.
5. Kansas City: S. D. Henry, M. D.
6. Lawrence: E. R. Keith, M. D.
7. Leavenworth: A. L. Suwalsky, M. D.
8. Parsons: M. C. Ruble, M. D.
9. Pittsburg: C. Mart Montee, M. D.
10. Salina: S. T. Blades, M. D.
11. Topeka: Aurel Goodwin, M. D.
12. Wichita: R. E. Hobbs, M. D.

SPECIAL ACTIVITIES OF THE DIVISION OF COMMUNICABLE DISEASES.

Control of communicable diseases.

Securing and tabulation of morbidity reports.

Epidemiological investigation in epidemics of communicable diseases occurring in all sections of the state.

Immunization campaigns against smallpox, typhoid fever and diphtheria.

Free distribution of biological products—toxoid and toxin-antitoxin for immunization against diphtheria; smallpox vaccine; typhoid vaccine; tetanus antitoxin; prophylactic vaccine; Schick test; prophylactic packages to physicians and midwives for the prevention of ophthalmia neonatorum.

Answering all correspondence concerning this division.

Visits by epidemiologist to all counties in the state to personally meet the health officers and county commissioners who are the county board of health.

Aiding local health authorities upon request in controlling epidemics.

Issuing weekly morbidity reports for the state to the Surgeon General, United States Public Health Service, and the health officers of the different cities and counties.

Issuing monthly and yearly morbidity reports to the Surgeon General.

Keeping and filing of all reported cases of tuberculosis. A record of each case is on file showing the termination, whether arrested, active or deceased. Sending out and recording tuberculosis supplies, which are furnished free by the state, to each reported case upon request of the patient.

Issuing of literature on communicable diseases.

Articles are prepared for publication for newspapers of the state on communicable diseases.

Forecasts are made of the danger of certain diseases becoming epidemic and the best-known measures of prevention are outlined.

The epidemiologist is available for addresses to organizations on the control of communicable diseases.

COMMUNICABLE DISEASES.

Included in this biennial report are morbidity and mortality statistics for diphtheria, typhoid fever, smallpox, scarlet fever, measles, whooping cough, tuberculosis and anterior poliomyelitis.

Control of diseases dangerous to the public health may be successfully accomplished if the health authorities have the coöperation of physicians in promptly reporting the cases that occur in their practice. Publicity is a large factor in the control of all diseases; therefore, it is advisable to secure the coöperation of the local press in publishing timely items pertaining to health subjects.

DIPHTHERIA.

Reported for 1930	696 cases
Reported for 1931	1156 cases
Reported first six months of 1932	416 cases

Kansas' first county-wide immunization program against diphtheria was started in the fall of 1921, in Wabaunsee county, with approximately 2,500 children receiving three doses of toxin-antitoxin.

Slow progress was made the first five years due to the inability of the Kansas State Board of Health to furnish the biologicals necessary to immunize large groups of children. Our records show that 59,000 children were treated with toxin-antitoxin from 1921 to 1926, inclusive. With more funds available for free biologicals and with the coöperation of county medical societies, rapid progress was made during the year 1927, a total of 75,000 children receiving the treatment. The total immunizations the next two years were 100,000. For six months of 1929 and for the year of 1930 no funds were available for free distribution of toxin-antitoxin, owing to the limited appropriation being expended in the first few months of the year. Only 13,000 children were treated during this period, and as a result of this failure to at least immunize the yearly birth rate of the state there was an 83 per cent increase in cases during 1931 over the previous year. Fortunately, owing to certain favorable conditions in the age groups attacked, 80 per cent of the cases occurring during October, November and December being above four years of age, the death rate remained on a par with 1929 and 1930.

The last legislature having appropriated sufficient funds to furnish free biologicals to immunize every remaining nonimmunized child in the state, intensive efforts were made to interest the county commissioners over the state in financing free immunization for the children. Twenty-seven counties operating under part-time health officers arranged for free immunizations and the children were treated with toxoid or toxin-antitoxin. In addition the ten full-time county units have furnished free immunization to all children whose parents requested this service. The total immunizations for the year of 1931 were 68,335 and for the first six months of the present year 26,055.

As Kansas had no data on the percentages of the different age groups reached in our immunizations previous to 1931, on June 1 blank record forms were distributed for recording the names and ages of all children treated. There were 54,760 names received and tabulated in 1931; 15,598 names have been received for the first six months of this year. In this total of 70,358 names received and tabulated in 1931-'32, 21,008, or 29.9 per cent, were under five years of age, frequently referred to as the preschool age.

On July 22, 1931, the following letter was forwarded to every health officer in the state:

Dear Doctor—There are indications that diphtheria will be more prevalent this fall than during the previous five years. The cases that are occurring at the present time are of the most virulent type.

The months of the year when diphtheria is most prevalent in this state are October, November and December. If children are given the immunization treatment at this time a high percentage will have gained their immunity before the disease becomes epidemic. Yours very truly,

C. H. Kinnaman, M. D., *Epidemologist.*

TABLE No. 1.—Diphtheria cases and deaths, 1930-'31.

Month.	1930.		1931.	
	Cases.	Deaths.	Cases.	Deaths.
January	85	17	80	4
February	55	6	58	4
March	63	3	58	2
April	33	3	45	3
May	41	3	47	2
June	43	4	33	1
July	21	1	31	5
August	40	1	27	0
September	47	6	52	3
October	73	2	212	10
November	83	10	314	15
December	112	11	199	19
Totals	696	67	1,156	68

In 1930 the Board adopted a supplemental report form to be returned with all reported diphtheria cases. In 1930 reports were received on 486 of the 696 cases. Of the supplemental reports received, 24 cases gave a history of a previous attack of diphtheria. In 45 cases there was a history of the patient previously having received toxin-antitoxin. In 5 of these persons the time which had elapsed after the administration of toxin-antitoxin was less than three months before the onset of the disease. In 11 cases the date of administration was given as from 1 to 7 years previous to the attack of diphtheria; in 3 cases the patient received only 2 doses, while in 1 case only 1 dose was given. In 25 cases the date the patient received the treatments was not recorded; 101 cases were contacts with other members of the family suffering from an attack of this disease. In 19 cases persistent carriers of diphtheria organisms were found among members of the family group.

For the year 1931 supplemental reports were received on all but two cases, the missing blanks being from Grant county and Pittsburg city. Of the 1,156 cases reported, 1,140 occurred in white persons and 16 in black. Ten of the 1,154 cases gave a history of a previous attack of diphtheria. Multiple cases occurred in 169 families; 112 reported 2 cases, 37 reported 3 cases, 13 reported 4 cases, 6 families reported 5 cases, and 1 family reported 6 cases. Twenty-three of the fatal cases were contacts with cases in the family group.

One hundred and eleven children who had previously received toxin-antitoxin contracted diphtheria. In 21 of the cases less than three months had elapsed from the date of immunization until the onset of the disease; in 14 cases less than one year. In 45 persons the treatments had been completed more than one year; in 31 cases no date was given.

For the first six months of the present year all supplemental report blanks were received on the reported cases.

Of the 416 cases reported, 409 occurred in white persons and 7 in black. Eight cases gave a history of diphtheria attacks in previous years. Multiple cases occurred in 35 families, 20 reported 2 cases, 12 reported 3 cases, 2 reported 4 cases, and one family reported 7 cases. Thirty-one cases had received 3 doses of toxin-antitoxin one year or more prior to their illness. Nine children received the three doses of this biological less than six months previous to their attack of diphtheria. Seven of the fatal cases were contacts with cases or

carriers in the family group. Five of the fatal cases had previously received 3 doses of toxin-antitoxin as follows: 1 in 1927, 1 in 1931, and 3 in 1932. Less than one month elapsed in two of these cases between the immunization treatment and the attack of diphtheria.

Thirty-three fatal cases of diphtheria have occurred in the first six months of the year 1931.

A study of diphtheria deaths reported in 1931 shows the localization of the infection as follows:

	Deaths.	*Per cent.*
Laryngeal	33	48.5
Pharyngeal	13	19.0
Tonsillar	14	20.5
Pharyngeal and nasal	4	6.0
Nasal	2	3.0
Unknown	2	3.0

Each year numbers of deaths occur attended by one or more of the following circumstances:

1. Delay in calling medical aid.
2. Delayed or insufficient administration of antitoxin.
3. Failure to make diagnosis on definite clinical picture, but with negative laboratory findings.
4. Because child had received the immunization treatment by the administration of toxin-antitoxin and the parent did not think it had diphtheria.
5. Sudden death due to overtaxing of the heart muscle during early convalescence.

The past year eight children died of diphtheria who had received toxin-antitoxin prior to 1931.

As 400,000 children have received toxin-antitoxin, but have not received the Schick test to prove their immunity, parents should regard all symptoms of diphtheria with suspicion and promptly call their family physician in every case. Children who have received toxin-antitoxin for immunization against diphtheria should be Schick tested one year after completing the treatments, as approximately 15 per cent do not gain immunity after 3 doses of toxin-antitoxin. Only by education of the parents to the value of this test, to determine immunity, is it possible to prevent cases of diphtheria occurring in this nonimmunized group who have received toxin-antitoxin. As toxoid becomes more generally used over the state, nonimmunization of this 15 per cent will be avoided as this biological is far more effective and the percentage of failures to immunize is very low.

ADVANTAGES OF TOXOID.

Diphtheria toxoid has several advantages over toxin-antitoxin, as follows:

1. Toxoid does not contain animal serum, and for that reason does not sensitize to animal protein.
2. Immunity develops more rapidly after toxoid than after toxin-antitoxin.
3. A higher percentage of children become Schick negative after 2 doses of toxoid a month apart than after 3 doses of toxin-antitoxin a week apart.
4. The use of 2 doses instead of 3 simplifies the procedure.
5. The simplified procedure will make it easier for the family physician to immunize young children.
6. Toxoid is a more stable product than toxin-antitoxin and is much less likely to deteriorate upon standing.

TYPHOID FEVER.

Reported for 1930	364 cases
Reported for 1931	256 cases
Reported first six months of 1932	66 cases

The summary of the 1930 special report blanks for typhoid fever is as follows: Three hundred sixty-four blanks were sent out to health officers on the reported cases. Of this number, 27 reports were not returned for cases that occurred in 34 counties of the state. The 287 blanks returned represented 265 families. Two cases occurred in each of 4 of these families; 3 cases in each of 3 families, and 4, 5, and 6 cases in single families. Thirty-seven cases were the result of contact infection. A history of previous typhoid cases in former years was obtained in 80 of the families from which cases were reported in 1930.

Three milk-borne epidemics with a total of 16 cases were traced to carriers located on the dairy premises. Twenty-five patients gave a history of swimming or wading in rivers, creeks or ponds; 4 persons had been swimming in municipal pools. The sources of the water supply used by the 287 patients prior to the development of their illness was reported as follows:

Private wells	110
Private cisterns	60
Springs	14
Rivers	6
Municipal water supplies	83
Not stated	14
Total	287

In 158 of the cases outside pit toilets were on the premises. In 9 cases the diagnosis was questionable. Three of these cases had been previously immunized with typhoid vaccine.

According to the reports received, 41 persons contracted their infection outside of Kansas. The states named as the source included: Arizona, Colorado, Florida, Iowa, Louisiana, Missouri, Michigan, Nebraska, Oklahoma and Tennessee. In addition 4 persons were reported to have contracted the disease as the result of contact in their homes with persons ill with the disease visiting them from Arkansas, Colorado and Oklahoma.

Typhoid fever established a new low morbidity and mortality record for the year of 1932.

The progress being made in the control of typhoid fever, as compared to the occurrence of this disease 15 years ago, is illustrated by referring to the records of that year. In 1917, 401 cases were reported from Butler county, and the epidemiological investigation made by the Kansas State Board of Health stated the disease was fly-borne. During the same year 268 cases occurred in the city of Leavenworth and Leavenworth county. The majority of these cases were traced to a contaminated municipal water supply, although many cases occurred on a dairy route which used water from the municipal supply for washing milk utensils. This was the last extensive epidemic of this disease where the local municipal water supply was established without question to be the source from which the people received their infection. Under present conditions extensive outbreaks such as occurred in 1917 are not liable to occur.

No milk-borne epidemics of typhoid fever were reported for the year of

1931. There was a question on one municipal water supply located at St. Francis.

For the second year the supplemental information has been required it is found reports were received on 249 of the 256 cases.

The supplemental report was not received on 2 cases from Cowley county and 1 case each from Hodgeman, Johnson, Meade and Pawnee counties.

A summary of the data showed 34 cases developed as a result of contact with other cases of typhoid fever. Cases of the disease had occurred in 41 of the families in previous years. Two cases were reported in each of 22 families; 3 cases each in 3 families; 4 families each reported 4 cases, while 6 cases occurred in 1 family. Sixty-eight of the reported cases, therefore, for 1931, occurred in 27 families.

The source of drinking water of 138 families was a private well; cisterns, 19; spring water, 3; river water, 6, while 83 families used a municipal water supply. One hundred twenty-eight families used an outside pit toilet.

Forty-eight of the reported cases had been traveling over the state prior to the onset of their illness. The source of infection of 45 cases was determined as originating in other states as follows: Missouri, 15; Oklahoma, 9; Nebraska, 6; Colorado, 4; Iowa, Illinois and Texas, 2 each, and 1 each in Kentucky, Tennessee, Minnesota, Arkansas and Pennsylvania. Twenty-eight cases gave a history of swimming in creeks, rivers or ponds.

In one city 12 persons who attended a local fair became ill with typhoid fever in 10 to 14 days after the fair closed. The evidence indicated the infection was contracted on the fairgrounds from a carrier dispensing either food or drinks.

Much attention was given to securing release of typhoid fever cases only after two consecutive negative stool cultures. This procedure was well worth while, as two persons were discovered who gave positive stool findings of the organism, even though several months had elapsed since their recovery from the disease. These two cases have been reported as typhoid carriers on the proper report card.

For the first six months of 1932, 66 cases of typhoid fever have been reported, and supplemental reports were received on all the cases. Twenty-nine families used private wells, 3 cisterns, 5 spring and 4 creek water for drinking purposes. Twenty-seven families used municipal water supplies. Twenty-five premises where cases occurred were not connected to sanitary sewer systems, and common outside pit toilets were used by these families. Ten cases were traced to a typhoid carrier employed as cook in a restaurant. Five were contact cases, the infection being acquired from some other member of the household sick with the disease. Five received their infection outside the state. Two families had 3 cases in each household. All cases were among the white race, there being 43 males and 23 females.

SMALLPOX.

Reported for 1930	2,422 cases
Reported for 1931	2,529 cases
Reported for first six months of 1932	134 cases

Kansas will continue to report thousands of smallpox cases each year under the present existing vaccination law. Statistics of countries, states and municipalities show universal vaccination will abolish smallpox. In this country nine states have some form of compulsory vaccination; in six states vaccination is optional with local authorities. Thirty-three states do not have compulsory vaccination laws. Four states—Arizona, Utah, North Dakota and Minnesota—prohibit compulsory vaccination. The combined population of the four states in 1920 was 3,817,555, and in a ten-year period from 1919 to 1928, 46,130 cases of smallpox occurred in these states, while Massachusetts, under compulsory vaccination with a population slightly larger than their combined total, 3,852,356, had but 408 cases.

Vaccination and vaccination alone will prevent smallpox. The Kansas State Board of Health in 1930 furnished vaccine points for the vaccination of 55,800 persons; in 1931 for 45,830 persons.

With a law requiring all children to be vaccinated against smallpox before they could enter school, this disease would soon be abolished in this state.

SCARLET FEVER.

Reported for 1930	3,610 cases
Reported for 1931	2,364 cases
Reported for first six months of 1932	1,183 cases

Scarlet fever during the biennium showed a marked reduction over previous years. Many mild and atypical cases continue to occur, making the control of this disease a difficult problem in counties operating under the part-time health officer.

EPIDEMIC CEREBROSPINAL MENINGITIS.

Reported for 1930	120 cases
Reported for 1931	56 cases
Reported for first six months of 1932	35 cases

The actual number of persons reported as suffering from this disease does not average more than 100 each year. This is a low figure when compared with the total population of the state, but as the case-fatality rate exceeds 50 per cent every effort should be made by health authorities to avail themselves of all preventive measures when cases appear in their respective communities. Several counties have had endemic cases of meningitis during the biennium. With the assistance of the public health laboratory, culture work was carried out in these communities to discover possible carriers of the meningicoccus organisms. A number of persons were found to be carriers and placed under quarantine until two negative cultures, after an interval of two weeks, were secured. In every community, where culturing of contacts was carried on, the public coöperated in every way to assist State Board of Health officials in completing the work.

MEASLES.

Reported for 1930	12,295 cases
Reported for 1931	1,782 cases
Reported for first six months of 1932	5,878 cases

The cycle of measles follows closely three-year periods—1933 is the next peak year. Measles is the most contagious of all communicable diseases. As it is possible to forecast the year when this disease will be epidemic in every community, publicity on the control and care of measles should be disseminated in advance of the expected epidemic. When it is possible to prevent cases in the early years of life, the death rate from this disease will be materially reduced.

WHOOPING COUGH.

Reported for 1930	2,893 cases
Reported for 1931	1,749 cases
Reported for six months of 1932	2,453 cases

Whooping cough is extremely fatal in children under one year of age, and for this reason precaution should be taken to prevent babies and young children from contracting the disease. The public should see that the regulations governing reporting and quarantine are enforced by the health officials having jurisdiction.

UNDULANT FEVER.

Reported for 1930	99 cases
Reported for 1931	64 cases
Reported for first six months of 1932	18 cases

Since the recognition of undulant fever in Kansas all blood specimens sent to the laboratory for the typhoid agglutination test are examined for the agglutinations of undulant fever. The result of this procedure is that many cases diagnosed as typhoid fever by the attending physicians, following the laboratory reports, have proved to be undulant fever.

Improved dairy inspection and the elimination of cows from the herds suffering from contagious abortion will aid in the eradication of this disease. Pasteurization of all milk supplies has a marked effect in preventing undulant fever.

TUBERCULOSIS.

Reported for 1930	1,387 cases
Reported for 1931	1,359 cases
Reported for first six months of 1932	697 cases

Failure of Kansas physicians to report tuberculosis cases promptly during this biennium would make it appear that this disease was less prevalent than during the past five years. That this is not the case is apparent to all health officials. In order to make further progress in reducing the cases and deaths that occur each year, adequate sanatorium facilities are necessary to care for at least one thousand cases. Every physician should immediately report every diagnosed case of tuberculosis that comes to his attention. If reporting is fairly complete health authorities are in a position to give authentic information to the public regarding the prevalence of tuberculosis in Kansas communities.

ACUTE ANTERIOR POLIOMYELITIS (INFANTILE PARALYSIS).

Reported for 1930 ..... 694 cases
Reported for 1931 ..... 32 cases
Reported for first six months of 1932..... 5 cases

The most extensive epidemic of poliomyelitis in the history of the state occurred during the summer and fall months of 1930.

TABLE No. 2.—Acute anterior poliomyelitis, by months, 1921-1931.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1921.....	2	4	0	1	2	1	3	16	36	20	1	2	91
1922.....	5	2	0	0	1	1	1	6	4	1	1	1	23
1923.....	0	2	2	0	0	1	10	74	2?	20	9	2	149
1924.....	3	2	1	3	2	0	1	4	8	2	0	2	28
1925.....	0	0	2	0	1	2	15	38	35	19	6	4	122
1926.....	2	1	2	0	1	3	3	13	22	13	3	3	66
1927.....	2	0	5	2	3	5	17	34	68	45	11	4	196
1928.....	3	1	4	1	1	0	3	14	9	3	1	0	40
1929.....	2	0	0	1	0	2	5	4	6	6	0	0	26
1930.....	2	2	1	0	1	2	39	185	272	161	25	4	694
1931.....	4	7	4	0	0	3	4	4	0	2	1	3	32

On July 5, 1930, a general warning was issued to all health officers that the most severe epidemic in the history of the state would occur during the next few months. An increased prevalence in July over normal years indicates what to expect during August, September and October, as these are the months when the disease occurs most frequently in this climate. With the first heavy frosts the disease rapidly subsides, and only sporadic cases are reported for the remaining months of the year. It appears to the writer that poliomyelitis has become more common and widespread of late years; good roads and automobiles are no doubt factors. The increase cannot be wholly accounted for by the fact that the disease is now better known and more readily recognized than formerly.

As infantile paralysis follows the main lines of travel, man apparently is the only means of transmission. The experience in this epidemic has been that prompt quarantine of all children to their own premises on the appearance of the first case in the community had a marked effect in slowing down the occurrence of new cases. In communities where these measures were not followed this was not the case. Prompt quarantine of all recognized cases and household contacts should be rigidly enforced. Until more is known about the transmission of infantile paralysis strict quarantine should be enforced, as the above methods have shown the best results in preventing the spread of this disease.

TABLE No. 3.—MORBIDITY REPORT, 1930.

Counties and Cities.	Tuberculosis (all forms)	Typhoid and paratyphoid	Smallpox	Diphtheria	Influenza	Scarlet fever	Measles (morbilli)	German measles (rubella)	Whooping cough	Chickenpox	Mumps
Allen	22	3	4	0	0	15	79	4	9	37	6
Anderson	4	5	14	4	0	8	107	1	40	6	5
Atchison, except	4	5	0	3	0	52	9	1	8	9	2
Atchison city	4	3	1	3	0	43	2	6	41	40	6
Barber	5	0	2	0	0	17	6	0	3	8	2
Barton	11	5	29	5	1	31	253	4	47	22	26
Bourbon, except	3	5	40	6	0	16	35	0	2	1	0
Fort Scott	15	19	46	15	0	18	182	0	31	9	0
Brown	21	6	4	3	2	101	296	1	38	46	8
Butler	33	1	13	20	0	118	1,125	2	85	163	123
Chase	1	1	4	0	1	7	74	0	23	41	11
Chautauqua	6	1	0	1	0	6	88	0	0	5	0
Cherokee	54	9	55	16	1	109	312	0	70	98	2
Cheyenne	3	1	0	0	0	25	2	0	0	0	1
Clark	2	2	27	1	0	11	52	0	4	5	6
Clay	16	1	14	0	0	7	45	0	27	8	1
Cloud	24	3	52	0	0	38	73	1	15	9	47
Coffey	3	2	9	2	0	25	28	1	21	23	61
Comanche	1	3	1	1	0	1	5	0	0	0	3
Cowley	35	4	9	14	4	207	217	1	19	52	213
Crawford, except	23	7	105	34	0	38	157	0	22	14	1
Pittsburg	17	4	106	19	0	30	124	0	7	8	0
Decatur	2	1	11	0	0	30	62	1	1	13	4
Dickinson	10	2	36	3	0	13	400	182	101	83	116
Doniphan	7	10	5	5	0	19	8	0	12	7	0
Douglas, except	8	1	0	3	0	7	19	0	0	5	2
Lawrence	7	1	2	3	0	4	27	0	13	42	3
Edwards	5	5	4	2	0	9	28	0	19	24	37
Elk	6	0	3	2	5	22	18	2	4	2	3
Ellis	4	0	36	15	0	3	49	0	10	22	11
Ellsworth	1	3	8	2	0	7	15	0	22	36	59
Finney	6	1	29	2	0	5	29	1	11	17	31
Ford	5	4	17	3	0	30	234	0	22	29	9
Franklin	7	2	94	39	1	33	76	0	71	38	3
Geary	7	4	2	2	12	22	42	0	120	122	28
Gove	6	0	20	0	0	4	23	0	1	35	6
Graham	2	0	7	2	1	14	2	0	15	24	2
Grant	2	0	6	0	0	17	68	0	9	14	1
Gray	3	3	21	1	0	19	241	0	17	15	52
Greeley	0	0	4	0	0	2	2	0	0	0	0
Greenwood	14	4	0	2	8	55	41	1	59	77	5
Hamilton	1	0	17	1	0	8	44	0	2	0	1
Harper	13	1	32	1	0	15	124	3	16	76	1
Harvey	23	14	12	3	1	32	60	0	71	14	592
Haskell	1	1	12	0	0	2	1	0	5	1	0
Hodgeman	0	0	16	0	0	1	38	0	0	0	0
Jackson	19	1	3	1	0	12	38	0	7	11	5
Jefferson	2	0	0	1	1	9	58	0	21	24	0
Jewell	7	3	7	1	1	13	149	0	25	17	10
Johnson	11	2	6	3	0	22	3	1	14	15	1
Kearny	3	0	15	0	0	1	24	1	0	2	2
Kingman	2	0	17	0	3	28	10	3	1	42	6
Kiowa	0	0	5	3	0	17	121	0	4	20	2
Labette, except	9	1	62	19	0	7	111	0	2	11	1
Parsons	13	0	63	6	4	14	150	1	0	4	8
Lane	0	0	18	1	0	0	30	0	0	2	0
Leavenworth, except	158	4	1	6	0	14	16	0	9	52	2
Leavenworth city	9	4	0	54	1	22	49	1	4	8	1
Lincoln	3	5	18	4	0	3	12	0	1	65	42
Linn	2	2	2	2	1	23	11	0	3	2	2
Logan	5	1	17	0	0	7	7	0	2	1	2
Lyon	23	11	11	1	0	58	150	7	107	173	14
Marion	27	1	13	0	0	11	147	1	105	63	44
Marshall	13	7	7	0	0	32	17	1	2	37	0
McPherson	19	8	16	3	3	5	101	1	64	15	27
Meade	2	0	11	1	0	69	125	0	0	13	17
Miami	21	1	41	2	1	8	5	0	0	15	4

TABLE No. 3.—Morbidity report, 1930—CONTINUED.

COUNTIES AND CITIES.	Tuberculosis (all forms)	Typhoid and paratyphoid	Smallpox	Diphtheria	Influenza	Scarlet fever	Measles (morbilli)	German measles (rubella)	Whooping cough	Chickenpox	Mumps
Mitchell	8	1	15	5	0	31	4	0	5	8	8
Montgomery, except	30	14	5	29	2	136	359	0	23	99	24
Coffeyville	13	11	24	19	0	10	321	0	20	45	1
Morris	4	1	0	2	0	3	45	0	7	34	3
Morton	0	0	13	1	0	1	60	0	0	4	2
Nemaha	4	0	2	4	1	19	90	0	22	3	5
Neosho	9	1	2	8	0	2	97	0	5	3	1
Ness	0	2	21	1	1	1	40	1	1	3	11
Norton	10	1	16	1	0	57	98	8	33	13	4
Osage	8	5	0	5	2	47	131	0	25	14	3
Osborne	3	5	4	9	0	25	23	0	22	31	18
Ottawa	5	0	13	2	2	8	255	0	160	56	271
Pawnee	4	9	5	0	0	2	212	0	5	17	6
Phillips	10	0	36	1	0	31	89	0	14	16	0
Pottawatomie	1	0	5	0	0	9	4	0	1	0	1
Pratt	3	9	12	0	0	31	24	0	10	5	2
Rawlins	1	0	0	1	0	13	20	0	0	12	2
Reno, except	3	5	21	1	0	31	6	0	0	8	2
Hutchinson	9	12	110	10	0	57	51	1	4	75	11
Republic	9	2	8	1	0	45	49	0	2	23	29
Rice	5	4	3	2	0	4	24	0	9	14	14
Riley	15	3	1	3	0	72	52	3	43	130	23
Rooks	3	1	28	2	0	11	45	1	3	13	1
Rush	4	0	41	8	22	8	26	0	4	29	34
Russell	6	1	11	4	0	7	44	0	11	15	35
Saline, except	2	1	10	3	0	4	24	0	8	3	14
Salina	25	5	5	10	0	24	20	0	29	18	131
Scott	1	2	60	3	0	1	32	0	0	3	2
Sedgwick, except	5	3	4	12	0	117	39	1	14	14	5
Wichita	74	11	76	43	0	429	651	1	115	301	34
Seward	8	2	27	1	2	38	104	0	17	6	9
Shawnee, except	25	3	15	7	0	35	223	2	40	101	27
Topeka	74	8	56	34	30	124	2,101	2	457	404	301
Sheridan	3	0	20	1	0	12	8	0	41	62	13
Sherman	5	0	3	0	0	0	39	1	5	20	1
Smith	8	1	25	0	0	31	112	0	26	11	5
Stafford	3	2	10	1	1	8	27	0	4	1	8
Stanton	0	0	32	1	0	0	22	0	4	0	0
Stevens	0	1	58	8	0	2	19	0	0	0	1
Sumner	21	13	34	6	17	116	136	0	7	64	150
Thomas	1	1	0	2	0	2	8	0	47	25	22
Trego	0	3	45	9	1	10	15	0	1	0	55
Wabaunsee	5	2	13	2	1	31	30	0	30	13	94
Wallace	2	0	7	0	0	1	3	0	0	0	0
Washington	14	0	61	2	0	10	25	0	0	4	0
Wichita	0	0	1	0	0	0	4	0	0	2	0
Wilson	5	6	7	0	0	25	69	0	7	32	3
Woodson	2	2	3	6	0	12	108	0	5	7	15
Wyandotte, except	5	3	9	9	0	26	7	0	6	1	0
Kansas City	137	10	183	71	9	220	44	1	117	337	17
Totals	1,387	364	2,422	606	143	3,610	12,295	251	2,893	3,991	3,098

TABLE No. 3.—Morbidity report, 1930—CONTINUED.

COUNTIES AND CITIES.	Pneumonia (all forms)	Meningitis (epidemic)	Poliomyelitis (epidemic)	Malaria	Erysipelas	Undulant fever	Ophthalmia neonatorum	Trachoma	Septic sore throat	Tetanus	Other diseases
Allen	19	3	17	0	0	0	0	0	0	0	1
Anderson	4	0	6	0	0	0	0	0	0	0	2
Atchison, except	8	0	4	0	0	0	0	0	0	0	0
Atchison city	2	0	1	0	0	0	0	0	0	0	1
Barber	6	0	3	0	0	0	0	0	0	2	0
Barton	23	0	5	0	3	0	0	0	0	0	0
Bourbon, except	5	0	2	0	0	1	0	0	2	0	1
Fort Scott	17	2	4	0	1	0	0	0	0	0	1
Brown	18	0	11	0	0	0	0	0	0	0	2
Butler	58	3	12	0	2	0	0	0	0	0	2
Chase	14	0	1	3	0	0	0	0	0	0	0
Chautauqua	4	0	4	0	0	0	0	0	0	0	3
Cherokee	43	1	3	0	1	0	0	0	0	0	0
Cheyenne	9	0	3	0	2	0	0	0	0	0	0
Clark	11	1	4	1	1	1	0	0	0	1	2
Clay	17	0	10	0	0	0	0	0	1	0	2
Cloud	21	2	14	0	0	0	0	0	0	0	0
Coffey	9	0	5	0	0	0	0	0	0	0	1
Comanche	1	0	1	0	0	0	0	0	0	0	2
Cowley	44	2	13	0	1	0	0	0	0	0	6
Crawford, except	12	2	3	0	2	0	0	0	0	0	7
Pittsburg	9	1	5	1	1	0	2	0	0	0	0
Decatur	10	0	1	0	1	0	0	0	0	0	1
Dickinson	20	1	14	0	1	4	0	0	0	0	4
Doniphan	6	2	0	2	1	0	0	0	0	0	0
Douglas, except	15	0	4	0	1	0	0	0	0	0	0
Lawrence	8	0	5	0	4	1	0	0	0	0	0
Edwards	2	0	0	0	1	0	0	0	0	0	0
Elk	9	1	0	0	0	0	0	0	0	1	0
Ellis	16	3	0	0	0	0	0	0	0	0	1
Ellsworth	17	8	11	0	0	1	0	0	0	1	2
Finney	15	2	4	0	1	0	0	0	0	0	2
Ford	7	4	6	0	1	1	0	0	0	0	3
Franklin	17	3	13	2	2	2	0	0	0	0	0
Geary	12	1	9	2	1	4	0	0	3	0	3
Gove	1	0	1	0	0	1	0	0	0	0	1
Graham	4	0	1	0	0	1	0	0	0	1	0
Grant	0	0	1	0	0	0	0	0	4	0	0
Gray	13	0	1	0	0	0	0	0	0	0	0
Greeley	0	0	0	0	0	0	0	0	1	0	0
Greenwood	16	0	12	0	0	0	0	0	0	0	0
Hamilton	0	0	0	0	0	0	0	0	0	0	1
Harper	8	0	8	0	0	2	0	0	0	0	0
Harvey	40	0	9	0	0	4	0	0	3	0	8
Haskell	3	0	0	0	0	0	0	0	2	0	0
Hodgeman	1	0	1	0	0	0	0	0	0	2	1
Jackson	9	4	8	0	0	1	0	0	1	0	2
Jefferson	5	0	1	0	0	0	0	0	0	0	0
Jewell	12	4	14	0	0	1	0	0	0	0	0
Johnson	16	0	8	0	0	0	0	0	0	0	0
Kearny	3	0	0	0	0	0	0	0	0	0	0
Kingman	20	0	3	1	0	1	0	0	0	0	0
Kiowa	1	0	2	0	0	0	0	0	0	0	0
Labette, except	15	2	7	0	0	2	0	0	0	1	0
Parsons	20	0	4	0	0	0	0	0	0	0	3
Lane	1	0	0	0	0	4	0	0	0	0	0
Leavenworth, except	15	2	5	0	0	2	0	0	0	0	0
Leavenworth city	20	1	2	0	0	2	0	0	0	0	0
Lincoln	21	2	10	0	0	0	0	0	0	0	0
Linn	24	1	13	0	1	0	0	0	0	0	0
Logan	2	0	3	0	0	1	0	0	0	0	0
Lyon	24	1	14	0	0	1	0	0	0	0	0
Marion	13	0	13	0	0	5	0	0	0	0	0
Marshall	7	0	9	0	0	1	0	0	0	0	1
McPherson	5	0	16	0	0	0	0	0	0	0	0
Meade	3	0	0	0	0	0	0	0	0	0	0
Miami	36	1	21	0	0	1	0	0	0	0	4

TABLE No. 3.—Morbidity report, 1930—CONTINUED.

COUNTIES AND CITIES.	Pneumonia (all forms)	Meningitis (epidemic)	Poliomyelitis (epidemic)	Malaria	Erysipelas	Undulant fever	Ophthalmia neonatorum	Trachoma	Septic sore throat	Tetanus	Other diseases
Mitchell	0	0	5	0	1	10	0	0	0	0	1
Montgomery, except	13	4	8	3	1	1	0	0	3	0	4
Coffeyville	16	1	3	0	0	1	0	0	0	0	1
Morris	3	0	0	0	0	0	0	0	0	0	0
Morton	2	0	1	0	0	0	0	0	0	0	0
Nemaha	17	0	4	0	0	4	0	0	0	0	0
Neosho	5	0	13	0	0	4	0	0	0	0	0
Ness	7	0	3	0	0	0	0	0	0	1	1
Norton	10	0	4	0	0	10	0	0	0	0	0
Osage	18	0	6	0	0	0	0	0	0	0	2
Osborne	3	1	2	0	1	0	0	0	0	2	0
Ottawa	6	0	5	0	0	0	0	0	0	0	0
Pawnee	5	0	1	1	1	0	0	0	0	1	0
Phillips	7	1	0	0	0	1	0	0	0	0	0
Pottawatomie	2	0	6	0	0	1	0	0	0	0	0
Pratt	6	0	2	0	0	0	0	0	0	0	0
Rawlins	12	0	6	0	0	0	0	0	0	0	0
Reno, except	8	6	6	0	0	0	0	0	0	0	0
Hutchinson	17	5	13	0	1	1	0	0	0	1	0
Republic	22	0	34	0	2	0	0	0	0	0	4
Rice	5	0	6	0	0	1	0	0	0	0	1
Riley	33	0	6	1	2	3	0	0	0	0	0
Rooks	1	1	1	0	0	0	0	0	0	0	1
Rush	6	0	3	0	0	0	0	0	0	1	0
Russell	6	0	1	0	0	0	0	0	0	0	0
Saline, except	7	0	6	0	0	0	0	0	0	0	0
Salina	17	3	15	0	1	3	0	0	0	0	0
Scott	1	0	0	0	0	0	0	0	0	0	0
Sedgwick, except	19	1	18	0	1	0	0	0	0	0	10
Wichita	28	5	36	1	2	2	0	0	0	2	1
Seward	4	0	4	0	0	0	0	0	0	0	0
Shawnee, except	18	0	4	2	3	0	0	0	0	0	3
Topeka	116	4	16	0	4	2	0	0	0	2	133
Sheridan	4	1	6	0	0	0	0	0	0	0	1
Sherman	2	1	1	0	0	0	0	0	0	0	0
Smith	13	0	5	0	1	1	0	0	0	0	1
Stafford	1	1	0	0	1	0	0	0	0	0	3
Stanton	0	0	1	0	0	0	0	0	0	0	0
Stevens	0	0	0	0	0	0	0	0	0	0	0
Sumner	23	2	11	1	2	3	0	1	1	0	4
Thomas	4	0	2	0	0	0	0	0	0	0	0
Trego	3	0	0	0	0	0	0	0	0	0	0
Wabaunsee	9	0	1	0	0	1	0	0	0	0	1
Wallace	0	0	1	0	0	0	0	0	0	0	0
Washington	6	0	4	0	0	1	0	0	0	1	0
Wichita	0	1	2	2	0	0	0	0	0	0	0
Wilson	20	0	2	0	2	5	0	0	0	0	1
Woodson	12	0	4	0	0	0	0	0	0	0	0
Wyandotte, except	1	1	5	0	0	0	0	0	0	0	0
Kansas City	166	21	26	0	10	4	0	2	0	2	90
Totals	1,570	120	694	23	90	99	2	7	25	24	370

TABLE No. 3—CONTINUED. Diseases reported in 1930—Addenda.

COUNTIES AND CITIES.	Tularemia	Encephalitis lethargica	Rabies	Impetigo	Vincent's angina	Scabies	Carbon monoxide poisoning	Psittacosis	Ringworm	Bacillary dysentery	Pinkeye	Actinomyosis
Allen	0	0	0	0	1	0	0	0	0	0	0	0
Anderson	0	0	0	0	0	0	0	0	0	0	2	0
Barber	0	0	0	1	0	0	0	0	0	0	0	0
Fort Scott, city	0	0	0	0	0	0	1	0	0	0	0	0
Brown	0	1	0	0	0	0	0	0	0	0	0	0
Butler	1	0	0	0	0	0	1	0	0	0	0	0
Cherokee	1	0	1	0	0	0	0	0	0	0	0	0
Clay	0	0	0	0	2	0	0	0	0	0	0	0
Comanche	0	1	0	0	0	0	0	0	0	0	0	0
Cowley	1	0	0	0	0	0	0	0	0	0	0	0
Crawford	0	0	0	0	0	0	1	0	0	0	0	0
Pittsburg, city	0	2	0	0	0	0	0	0	0	0	0	0
Dickinson	1	0	0	0	0	0	0	0	0	0	0	0
Ellsworth	0	0	0	0	1	0	0	0	0	0	0	0
Franklin	0	1	0	0	0	0	0	0	0	0	0	0
Geary	1	0	0	0	0	0	0	0	0	0	0	0
Gray	1	0	0	0	0	0	0	0	0	0	0	0
Greenwood	1	1	0	0	0	0	0	0	0	0	0	0
Harvey	0	1	0	0	0	1	0	0	0	0	0	0
Jackson	2	0	0	0	0	6	0	0	0	0	0	0
Jewell	0	0	0	0	0	5	0	0	0	0	0	0
Leavenworth	1	0	0	0	0	0	0	0	0	0	0	0
Leavenworth, city	0	0	0	0	0	1	0	0	0	2	0	0
Lincoln	0	0	0	0	2	0	0	0	0	0	0	0
Linn	2	0	0	0	0	0	0	0	0	0	0	0
Marion	0	1	0	0	1	0	0	0	0	0	0	0
Miami	1	0	0	0	0	0	1	0	0	0	0	0
Mitchell	0	0	0	0	0	0	1	0	0	0	0	0
Montgomery	0	0	0	0	0	0	1	0	0	0	0	0
Osage	1	0	0	0	0	0	0	0	0	0	0	0
Rice	0	0	0	0	1	0	0	0	0	0	0	0
Sedgwick	0	0	0	0	0	10	0	0	0	0	0	0
Shawnee	0	0	0	0	1	2	0	0	0	0	0	0
Topeka, city	1	6	0	17	39	54	0	0	16	0	0	0
Sheridan	0	0	0	1	0	0	0	0	0	0	0	0
Sumner	0	0	0	0	2	0	0	0	0	0	0	0
Wabaunsee	0	0	0	0	0	1	0	0	0	0	0	0
Wilson	0	0	1	0	0	0	0	0	0	0	0	0
Kansas City	1	1	0	0	0	2	0	2	0	0	0	1
Totals	16	15	2	19	50	82	6	2	16	2	2	1

TABLE No. 3.—Diseases reported, 1930—Concluded.

SUMMARY, 1930.

Tuberculosis	1,387
Typhoid fever	364
Smallpox	2,422
Diphtheria	696
Influenza	143
Scarlet fever	3,610
Measles	12,295
German measles	251
Whooping cough	2,893
Chicken pox	3,991
Mumps	3,098
Pneumonia	1,570
Meningitis (epidemic)	120
Poliomyelitis (epidemic)	694
Malaria	23
Erysipelas	90
Undulant fever	99
Ophthalmia neonatorum	2
Trachoma	7
Septic sore throat	25
Tetanus	24
Other diseases	370
Total	34,174
Gonorrhœa	716
Syphilis	947
Total	35,837
Rabies in animals	62
Total	35,899

Other Diseases.

Pellagra	3
Typhus fever	1
Tularæmia	16
Encephalitis lethargica	15
Rabies	2
Impetigo	19
Vincent's angina	50
Scabies	82
Carbon monoxide poisoning	6
Psittacosis	2
Ringworm	16
Actinomycosis	1
Cancer	143
Pinkeye	2
Bacillary dysentery	2
Food poisoning	2
Trichinosis	1
Gastroenteritis	6
Lead poisoning	1
Total	370

TABLE No. 4.—MORBIDITY REPORT, 1931.

Counties and Cities.	Tuberculosis (all forms)	Typhoid and paratyphoid	Smallpox	Diphtheria	Influenza	Scarlet fever	Measles (morbilli)	German measles (rubella)	Whooping cough	Chickenpox	Mumps
Allen	6	22	1	11	1	10	2	1	12	18	3
Anderson	0	4	3	16	0	28	3	0	6	43	7
Atchison, except	7	0	5	8	0	2	61	1	1	7	1
Atchison city	5	0	2	6	0	32	6	0	21	65	5
Barber	3	2	3	1	0	2	2	0	0	2	8
Barton	12	6	13	19	1	14	7	3	8	78	4
Bourbon, except	3	5	28	18	0	10	1	0	0	5	1
Fort Scott	17	5	139	14	0	11	2	0	4	34	19
Brown	14	3	1	2	30	8	13	0	39	81	26
Butler	37	1	37	35	1	56	28	0	40	186	42
Chase	1	2	1	0	3	5	3	0	37	14	3
Chautauqua	0	1	17	9	0	0	68	0	3	15	28
Cherokee	59	1	92	12	1	40	0	0	73	80	6
Cheyenne	1	7	2	0	0	4	4	0	0	3	0
Clark	1	1	1	0	5	8	1	0	27	4	0
Clay	9	0	1	0	1	43	2	0	0	0	7
Cloud	6	0	1	0	0	37	22	0	3	26	3
Coffey	4	0	6	1	1	14	3	0	13	13	7
Comanche	5	1	1	0	1	34	0	0	0	0	0
Cowley	43	6	74	47	6	48	37	0	155	179	4
Crawford, except	16	5	5	17	0	4	5	0	7	3	3
Pittsburg	16	0	27	24	1	26	2	0	0	11	1
Decatur	2	0	4	0	0	12	2	0	0	5	18
Dickinson	6	4	11	14	0	15	8	0	1	148	28
Doniphan	5	0	3	0	11	47	16	0	10	26	3
Douglas, except	5	1	15	0	0	4	3	0	0	11	2
Lawrence	10	1	22	0	17	7	2	0	4	52	7
Edwards	2	0	6	3	0	16	3	2	15	8	25
Elk	12	1	15	2	0	9	5	0	3	6	0
Ellis	11	4	1	24	0	3	7	0	0	17	8
Ellsworth	7	0	27	5	0	7	149	0	0	101	1
Finney	11	3	41	3	1	16	2	0	4	37	2
Ford	16	2	5	1	0	17	3	0	15	24	85
Franklin	23	8	195	17	0	22	10	0	2	56	44
Geary	19	1	1	3	1	35	64	2	4	169	65
Gove	1	1	0	2	0	2	0	0	0	7	0
Graham	0	0	6	1	0	1	1	0	0	13	3
Grant	0	0	0	1	0	15	0	0	3	0	0
Gray	1	0	12	6	0	19	1	1	34	37	21
Greeley	3	0	0	0	0	0	0	0	1	3	5
Greenwood	13	3	10	6	5	75	10	0	9	43	24
Hamilton	2	0	1	3	1	2	0	0	0	3	2
Harper	7	6	14	14	0	31	3	0	22	44	3
Harvey	27	4	7	27	3	44	57	1	64	111	8
Haskell	0	0	0	0	0	6	0	0	0	0	0
Hodgeman	2	1	0	2	0	8	0	0	0	0	0
Jackson	10	2	1	4	0	4	3	0	25	22	23
Jefferson	7	0	0	27	0	6	8	0	14	7	26
Jewell	4	1	28	0	0	27	5	2	5	37	30
Johnson	5	2	7	10	1	19	107	0	16	4	3
Kearny	2	0	16	0	0	0	0	3	0	1	0
Kingman	6	0	2	0	11	4	7	0	16	13	10
Kiowa	1	0	9	0	2	4	2	0	19	16	3
Labette, except	12	4	1	10	1	29	6	0	1	0	0
Parsons	13	0	3	2	1	31	3	0	1	8	21
Lane	0	2	1	0	0	2	1	0	0	4	4
Leavenworth, except	133	0	6	15	861	7	7	0	36	22	0
Leavenworth city	6	0	0	16	23	15	3	3	16	47	3
Lincoln	5	4	2	3	0	4	4	0	32	13	4
Linn	4	3	13	9	5	20	2	0	8	3	2
Logan	0	0	1	0	0	7	3	0	0	6	4
Lyon	16	7	4	6	0	42	28	4	141	93	235
Marion	12	1	13	2	3	53	5	2	5	95	35
Marshall	8	6	2	1	0	20	3	0	3	10	0
McPherson	10	3	16	1	0	21	2	0	20	17	20
Meade	0	5	26	4	0	4	0	0	2	13	0
Miami	23	5	125	18	1	15	0	0	0	12	14

TABLE No. 4.—Morbidity report, 1931—CONTINUED.

COUNTIES AND CITIES.	Tuberculosis (all forms)	Typhoid and paratyphoid	Smallpox	Diphtheria	Influenza	Scarlet fever	Measles (morbili)	German measles (rubella)	Whooping cough	Chickenpox	Mumps
Mitchell	7	1	10	0	0	11	2	0	2	13	7
Montgomery, except	41	3	15	63	18	19	56	0	23	48	4
Coffeyville	11	4	46	18	0	11	4	1	14	16	8
Morris	4	0	33	0	0	4	0	0	0	10	22
Morton	0	0	2	0	1	0	0	0	0	0	0
Nemaha	4	0	0	6	0	18	1	1	9	4	0
Neosho	16	0	0	9	1	8	4	0	13	0	15
Ness	2	0	1	1	0	10	6	3	3	0	2
Norton	5	2	3	2	0	32	2	2	4	31	7
Osage	5	1	32	0	0	27	18	0	3	22	2
Osborne	2	3	96	3	0	11	1	0	0	13	1
Ottawa	7	3	10	1	1	64	4	0	19	45	0
Pawnee	5	1	12	8	0	12	2	0	0	10	36
Phillips	6	2	18	0	1	11	4	0	6	25	4
Pottawatomie	4	2	1	0	0	16	0	0	2	0	11
Pratt	10	0	9	9	1	8	1	0	0	15	6
Rawlins	2	1	3	0	0	34	1	0	0	10	1
Reno, except	3	7	47	11	0	17	9	0	0	7	1
Hutchinson	18	9	104	58	0	24	42	2	3	9	28
Republic	8	1	5	18	0	30	5	0	2	8	6
Rice	6	2	82	5	12	12	3	0	1	54	24
Riley	7	1	18	2	0	17	13	2	5	288	663
Rooks	1	1	5	0	0	2	0	0	0	0	3
Rush	5	0	2	3	0	3	3	0	2	13	3
Russell	0	0	3	3	0	1	9	0	2	25	0
Saline, except	2	0	3	2	0	2	0	0	3	6	0
Salina	14	0	4	1	0	24	10	0	10	31	7
Scott	0	3	4	0	1	8	2	0	10	34	4
Sedgwick, except	4	6	80	41	0	24	2	0	19	32	4
Wichita	116	6	539	159	0	107	81	0	136	367	41
Seward	1	3	21	4	0	51	2	1	1	53	24
Shawnee, except	39	8	2	5	0	45	25	8	31	62	133
Topeka	65	6	21	48	39	55	41	8	176	346	889
Sheridan	3	0	2	0	0	11	3	0	2	14	13
Sherman	3	0	29	0	1	2	70	0	23	3	14
Smith	4	2	7	0	0	95	1	0	0	5	0
Stafford	0	0	7	6	1	17	0	0	1	5	1
Stanton	0	0	12	2	0	3	0	0	1	1	0
Stevens	0	0	2	0	2	0	0	0	0	11	0
Sumner	18	1	38	35	21	76	3	3	21	61	7
Thomas	2	0	1	1	0	6	3	1	0	8	46
Trego	2	3	25	1	2	4	2	0	0	5	1
Wabaunsee	1	0	8	2	0	18	117	1	0	88	159
Wallace	0	0	0	0	0	0	3	0	0	0	0
Washington	10	0	5	9	0	7	1	0	1	4	7
Wichita	1	0	2	0	0	4	3	0	0	0	4
Wilson	9	3	2	3	1	15	1	0	10	56	8
Woodson	3	2	12	3	0	13	0	0	9	12	2
Wyandotte, except	12	1	3	30	0	29	32	0	11	9	2
Kansas City	144	11	11	82	3	163	373	4	171	197	52
Total	1,359	256	2,529	1,156	1,106	2,364	1,782	62	1,749	4,307	3,241

TABLE No. 4.—Morbidity report, 1931—CONTINUED.

COUNTIES AND CITIES.	Pneumonia (all forms)	Meningitis (epidemic)	Poliomyelitis (epidemic)	Malaria	Erysipelas	Cancer	Ophthalmia neonatorum	Tetanus	Undulant fever	Septic sore throat	Other diseases
Allen	27	0	0	0	1	1	0	0	0	0	1
Anderson	4	2	1	0	0	0	0	0	0	0	2
Atchison, except	3	0	0	0	0	0	0	0	0	0	0
Atchison city	22	0	0	0	0	0	0	0	0	0	0
Barber	0	0	0	0	0	0	0	0	0	0	2
Barton	16	0	1	0	4	0	0	0	0	0	4
Bourbon, except	8	0	0	0	1	0	0	0	0	0	0
Fort Scott	34	1	1	0	0	0	0	0	0	0	1
Brown	54	0	0	1	1	0	0	0	0	0	0
Butler	32	0	0	0	1	0	0	2	0	0	1
Chase	21	0	0	0	0	3	0	0	1	0	0
Chautauqua	3	1	0	0	0	0	0	0	0	0	0
Cherokee	35	0	2	1	0	3	0	1	0	4	13
Cheyenne	2	0	0	0	0	0	0	0	0	0	0
Clark	10	1	0	0	0	0	0	0	0	0	0
Clay	13	0	0	0	0	1	0	0	0	1	0
Cloud	16	2	0	0	2	2	0	0	1	0	8
Coffey	12	0	0	0	1	0	0	0	0	0	0
Comanche	15	0	0	0	0	0	0	0	1	0	1
Cowley	45	0	1	0	2	0	0	0	0	0	7
Crawford, except	20	1	0	0	1	5	0	0	0	5	0
Pittsburg	12	3	0	0	0	2	0	0	0	0	1
Decatur	5	1	0	0	6	0	1	1	0	0	0
Dickinson	28	0	0	0	1	0	0	0	0	0	2
Doniphan	24	0	0	0	0	1	0	0	0	0	13
Douglas, except	18	0	0	0	0	0	0	0	0	0	0
Lawrence	12	0	0	0	2	0	0	0	1	0	0
Edwards	2	0	0	0	0	0	0	0	0	0	1
Elk	8	0	0	0	1	1	0	0	1	0	0
Ellis	16	1	0	0	0	0	0	2	0	0	0
Ellsworth	8	0	0	0	0	1	0	0	0	0	0
Finney	18	0	1	0	0	2	0	0	0	0	0
Ford	31	1	0	0	1	0	0	0	2	1	1
Franklin	13	2	1	0	1	0	0	0	1	1	4
Geary	6	2	1	2	0	0	0	0	2	0	0
Gove	0	0	0	0	0	0	0	0	0	0	0
Graham	1	0	0	0	1	2	0	0	0	0	6
Grant	0	0	0	0	0	0	0	0	0	0	0
Gray	2	0	0	0	1	0	0	0	0	0	17
Greeley	3	0	0	0	0	0	0	0	0	0	5
Greenwood	29	0	0	0	1	5	0	0	3	1	5
Hamilton	4	3	0	0	1	0	0	0	0	0	0
Harper	8	0	0	0	2	2	0	0	0	8	1
Harvey	46	0	1	1	3	0	0	0	2	0	1
Haskell	0	0	0	0	0	0	0	0	0	0	0
Hodgeman	1	0	0	0	0	0	0	0	0	0	0
Jackson	5	0	0	0	2	2	0	0	0	0	3
Jefferson	2	0	0	0	0	2	0	0	1	0	2
Jewell	9	0	0	0	0	0	0	0	2	0	0
Johnson	14	0	1	0	0	0	0	0	0	0	0
Kearny	2	1	0	0	0	0	0	0	0	0	0
Kingman	6	0	0	0	0	6	0	0	0	1	0
Kiowa	3	0	0	0	1	0	0	0	0	0	1
Labette, except	19	0	0	0	1	1	0	0	2	0	0
Parsons	15	0	0	0	0	0	0	2	2	0	0
Lane	0	0	0	0	0	0	0	0	0	0	0
Leavenworth, except	30	2	0	0	4	0	0	0	0	0	0
Leavenworth city	36	2	0	1	3	0	0	0	1	0	2
Lincoln	25	1	0	0	2	0	0	0	0	1	2
Linn	12	0	0	0	0	0	0	0	0	0	0
Logan	4	0	0	0	0	0	0	0	0	0	0
Lyon	18	3	0	0	1	7	0	0	2	1	0
Marion	21	0	0	0	0	2	0	0	2	0	2
Marshall	10	1	0	0	1	0	0	0	1	1	19
McPherson	9	0	0	0	0	0	0	0	1	0	1
Meade	3	0	0	0	0	0	0	0	0	0	1
Miami	44	0	1	0	1	0	0	0	2	2	2

TABLE No. 4.—Morbidity report, 1931—CONTINUED.

COUNTIES AND CITIES.	Pneumonia (all forms)	Meningitis (epidemic)	Poliomyelitis (epidemic)	Malaria	Erysipelas	Cancer	Ophthalmia neonatorum	Tetanus	Undulant fever	Septic sore throat	Other diseases
Mitchell	0	0	0	0	1	0	0	0	2	0	5
Montgomery, except	19	0	0	2	1	2	0	1	2	0	8
Coffeyville	27	0	0	0	0	0	0	0	0	1	3
Morris	6	0	0	0	1	1	0	0	0	0	0
Morton	1	0	0	0	0	1	0	0	1	0	0
Nemaha	22	1	0	0	0	1	0	0	0	0	0
Neosho	9	1	0	0	0	0	0	0	0	0	2
Ness	5	0	1	0	0	0	0	1	0	0	0
Norton	3	0	0	0	0	0	0	0	1	0	1
Osage	19	0	0	1	3	1	0	0	1	7	2
Osborne	7	0	0	0	0	1	0	0	1	0	0
Ottawa	5	2	0	0	1	1	0	0	0	0	1
Pawnee	4	0	0	0	1	0	0	0	3	0	0
Phillips	6	0	1	0	0	0	0	0	0	1	2
Pottawatomie	4	0	0	0	0	0	0	0	0	0	0
Pratt	3	1	1	0	0	1	0	2	0	0	1
Rawlins	21	1	0	0	1	0	0	0	0	1	0
Reno, except	7	0	0	0	1	0	0	0	1	0	1
Hutchinson	38	2	1	0	0	1	0	1	2	0	0
Republic	16	0	0	0	3	1	0	2	0	0	0
Rice	12	0	0	0	0	1	1	0	0	0	0
Riley	30	0	3	0	0	0	1	0	1	0	0
Rooks	1	2	0	0	2	0	0	0	0	2	3
Rush	2	0	0	0	0	0	0	0	0	0	0
Russell	6	0	0	0	0	0	0	0	0	0	0
Saline, except	4	0	0	0	0	0	0	0	2	0	0
Salina	7	0	0	0	0	0	0	0	0	1	0
Scott	0	0	0	0	0	0	0	0	0	0	0
Sedgwick, except	13	1	1	0	2	0	0	0	1	0	0
Wichita	30	0	3	0	5	0	0	1	2	0	3
Seward	8	1	0	0	1	0	0	0	1	0	2
Shawnee, except	36	1	0	5	2	4	0	0	7	0	6
Topeka	91	1	0	0	5	0	0	1	0	2	160
Sheridan	5	0	0	0	1	0	0	0	0	0	2
Sherman	9	0	1	0	0	0	0	0	0	0	0
Smith	15	0	0	0	1	1	0	0	1	1	2
Stafford	6	0	0	0	0	0	0	0	1	0	0
Stanton	0	0	0	0	0	0	0	0	0	0	0
Stevens	1	0	0	0	0	0	0	0	0	0	0
Sumner	55	0	2	0	3	1	0	0	1	2	4
Thomas	7	1	0	0	0	0	0	0	0	1	0
Trego	2	0	1	0	0	0	0	0	0	0	6
Wabaunsee	4	1	0	0	2	0	0	0	0	0	0
Wallace	0	0	0	0	0	0	0	0	0	0	0
Washington	6	0	1	0	3	3	0	0	0	0	0
Wichita	1	0	0	0	0	0	0	1	0	0	0
Wilson	22	0	1	0	2	0	0	0	0	0	2
Woodson	12	0	0	0	0	1	0	0	1	0	5
Wyandotte, except	6	0	0	0	0	2	0	0	0	0	1
Kansas City	129	9	3	4	5	18	0	1	1	1	6
Total	1,716	56	32	18	97	93	2	19	64	47	360

TABLE No. 4.—Morbidity report, 1931—Concluded.

ADDENDA—SUMMARY, 1931.

Anthrax	1
Actinomycosis	2
Tuberculosis	1,359
Typhoid fever	256
Smallpox	2,529
Diphtheria	1,156
Influenza	1,106
Scarlet fever	2,364
Measles	1,782
German measles	62
Whooping cough	1,749
Chicken pox	4,307
Mumps	3,241
Pneumonia	1,716
Meningitis (epidemic)	56
Poliomyelitis	32
Malaria	18
Erysipelas	97
Cancer	93
Ophthalmia neonatorum	2
Tetanus	19
Undulant fever	64
Septic sore throat	47
Botulism	1
Carbon monoxide poisoning	6
Letharigica encephalitis	13
Food poisoning	25
Impetigo contagiosa	50
Pellagra	9
Pinkeye	20
Ringworm	4
Rocky mountain fever	1
Scabies	79
Trachoma	8
Tularæmia	33
Vincent's angina	108
Total	22,415
Syphilis	744
Gonorrhœa	678
Total	23,837

MORBIDITY SUMMARY FOR SIX MONTHS ENDING JUNE 30, 1932.

	8
Chicken pox	2,846
Diphtheria	416
Erysipelas	48
German measles	22
Gonorrhœa	268
Influenza	222
Lethargica encephalitis	2
Malaria	
Measles	5,878
Meningococcus meningitis	35
Mumps	2,186
Ophthalmia neonatorum	1
Pellagra	1
Pneumonia (all forms)	1,236
Poliomyelitis (acute infectious)	5
Rabies	0
Scarlet fever	1,183
Septic sore throat	14
Smallpox	134
Syphilis	445
Tetanus	7
Tuberculosis (all forms)	697
Tularæmia	5
Typhoid fever	66
Undulant fever	18
Whooping cough	2,453
Other reportable diseases	273
Total	18,569

TABLE No. 5.—Morbidity summary, 1930.

Diseases.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total cases.	Deaths.
1. Chicken pox	614	558	529	458	307	229	31	17	29	157	339	723	3,991	3
2. Diphtheria	85	55	63	33	41	43	21	40	47	73	83	112	696	67
3. Erysipelas	15	16	14	10	6	5	3	3	3	4	2	9	90	30
4. German measles	20	9	88	108	10	2	0	3	3	1	5	2	251	0
5. Gonorrhœa	42	57	61	68	44	45	66	78	49	87	48	71	716	18
6. Influenza	51	19	20	10	2	6	5	1	2	17	4	6	143	550
7. Lethargica encephalitis	1	1	1	1	5	0	3	3	0	0	0	0	15	13
8. Malaria	0	0	0	1	3	3	10	5	0	1	0	0	23	13
9. Measles	978	1,667	2,530	3,308	2,654	853	173	44	20	15	28	25	12,295	80
10. Meningococcus meningitis	11	26	19	11	7	3	11	11	6	5	7	3	120	53
11. Mumps	394	617	639	609	349	194	83	25	27	33	50	78	3,098	1
12. Ophthalmia neonatorum	0	0	0	0	0	0	0	1	0	0	0	1	2	0
13. Pellagra	0	0	0	0	1	1	0	0	0	0	1	0	3	9
14. Pneumonia (all forms)	311	229	208	175	132	65	48	33	29	60	64	216	1,570	1,044
15. Poliomyelitis (acute infectious)	2	2	1	0	1	2	39	185	272	161	25	4	694	68
16. Rabies (in animals)	7	8	6	8	6	5	2	6	4	2	4	4	62	0
17. Rabies (in man)	0	0	1	0	0	1	0	0	0	0	0	0	2	2
18. Scarlet fever	625	589	574	527	259	125	92	52	129	208	212	218	3,610	45
19. Septic sore throat	2	2	4	3	3	2	1	1	1	1	2	3	25	76
20. Smallpox	274	296	428	400	233	308	74	27	10	43	103	226	2,422	6
21. Syphilis	89	43	112	109	55	131	88	53	52	58	116	41	947	147
22. Tetanus	0	0	2	0	1	6	4	5	2	2	1	1	24	31
23. Trachoma	4	0	1	1	0	0	1	0	0	0	0	0	7	0
24. Tuberculosis (all forms)	149	129	105	147	122	136	82	75	119	123	124	76	1,387	693
25. Tularæmia	0	0	0	0	1	2	0	0	1	1	3	8	16	0
26. Typhoid fever	11	6	14	10	26	27	78	68	48	37	25	14	364	57
27. Typhus fever	0	0	1	0	0	0	0	0	0	0	0	0	1	1
28. Undulant fever	10	2	3	8	8	13	17	3	9	10	6	10	99	5
29. Vincent's angina	16	3	1	2	4	1	4	2	2	2	6	7	50	0
30. Whooping cough	284	354	402	344	387	330	222	111	90	141	109	119	2,893	66
31. Other reportable diseases*													283	
Total													35,899	3,078

* Pink eye, 2; carbon monoxide poisoning, 6; food poisoning, 2; psittacosis, 2; scabies, 82; bacillary dysentery, 2; actinomycosis, 1; trichinosis, 1; cancer, 143; gastroenteritis, 6; lead poisoning, 1; ringworm, 16; impetigo, 19.

TABLE No. 6.—Morbidity summary, 1931.

Diseases.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total cases.	Deaths.
1. Actiniomycosis	0	0	0	0	0	0	2	0	0	0	0	0	2	0
2. Anthrax	0	0	0	1	0	0	0	0	0	0	0	0	1	0
3. Chickenpox	821	735	691	397	325	207	32	19	38	176	352	514	4,307	2
4. Diphtheria	80	58	58	45	47	33	31	27	52	212	314	199	1,156	68
5. Erysipelas	12	16	16	14	8	5	1	4	3	5	10	3	97	21
6. German measles	6	1	5	11	7	3	5	5	4	4	3	8	62	0
7. Gonorrhœa	53	37	42	44	67	72	62	56	84	58	46	57	678	24
8. Influenza	34	871	134	33	14	1	6	1	3	3	1	5	1,106	568
9. Lethargica encephalitis	2	5	1	1	0	0	0	2	0	0	1	1	13	14
10. Malaria	5	0	0	0	1	1	4	3	0	2	1	1	18	6
11. Measles	142	70	125	228	503	364	62	17	27	58	105	81	1,782	8
12. Meningococcus meningitis	10	11	9	5	2	5	1	4	0	4	1	4	56	24
13. Mumps	201	329	524	606	562	396	148	80	57	88	95	155	3,241	1
14. Opthalmia neonatorum	0	0	1	0	0	0	0	0	0	0	0	1	2	0
15. Pellagra	0	0	0	1	3	2	1	0	1	0	1	0	9	17
16. Pneumonia (all forms)	478	287	258	141	114	43	23	35	43	76	87	131	1,716	975
17. Poliomyelitis (acute infectious)	4	6	5	0	0	3	4	4	0	2	1	3	32	12
18. Rabies (in animals)	6	9	9	9	13	9	7	9	2	8	5	8	0	0
19. Rabies (in man)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20. Scarlet fever	267	284	282	254	170	77	56	57	96	264	282	275	2,364	23
21. Septic sore throat	2	6	4	3	3	7	7	2	3	3	3	4	47	20
22. Smallpox	533	380	494	471	296	226	60	6	5	11	31	16	2,529	7
23. Syphilis	69	93	78	39	41	67	68	74	37	52	47	79	744	118
24. Tetanus	0	1	0	1	3	0	3	4	2	1	2	2	19	24
25. Tuberculosis (all forms)	129	161	163	110	136	123	99	146	48	130	68	46	1,359	700
26. Tularæmia	0	0	1	3	2	1	0	3	0	0	8	15	33	1
27. Typhoid fever	13	4	2	14	13	17	44	33	48	43	14	11	256	41
28. Undulant fever	9	2	3	7	2	6	12	8	0	1	8	6	64	5
29. Whooping cough	134	134	131	241	209	207	160	107	62	56	116	192	1,749	24
30. Other reportable diseases*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	395	.....
Total	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23,837	.....

* Cancer, 93; food poisoning, 25; ring worm, 4; trachoma, 8; botulism, 1; impetigo contagiosa, 50; rocky mountain fever, 1; Vincent's angina, 108 carbon monoxide poisoning, 6; pink eye, 20; scabies, 79.

TABLE No. 7.—Typhoid fever by age groups, 1930.

Month.	Under 1 year.		1 to 4.		5 to 9.		10 to 14.		15 to 19.		20 to 24.		25 to 29.		30 to 34.		35 to 39.		40 to 44.		45 to 49.		50 to 59.		60 years and over.		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
January	0	0	0	0	0	1	1	0	0	1	2	0	0	2	0	0	0	0	2	0	0	1	0	1	0	0	5	6
February	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	2	0	0	1	0	0	3	3
March	0	0	0	0	2	2	1	1	3	1	1	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	9	5
April	0	0	0	0	1	0	2	1	0	1	2	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	6	4
May	0	0	0	0	3	3	1	1	2	2	5	1	2	1	0	1	0	0	1	1	0	0	0	1	0	1	14	12
June	0	0	0	0	4	1	3	2	1	1	1	1	2	0	2	1	3	0	1	2	0	0	0	1	0	1	17	10
July	0	0	2	1	6	6	7	4	5	9	6	2	4	1	4	1	5	4	2	1	3	0	1	3	0	1	45	33
August	0	0	3	0	5	2	8	4	5	4	6	6	3	4	4	2	5	1	2	0	0	0	0	3	1	0	42	26
September	0	0	0	0	6	4	6	5	4	3	3	2	4	0	3	1	1	0	1	0	0	0	3	1	1	0	32	16
October	0	0	0	2	2	0	7	2	6	3	3	0	1	1	1	0	0	3	1	0	0	1	1	0	1	2	23	14
November	0	0	1	0	1	1	2	4	3	4	0	1	1	0	0	1	1	0	1	0	1	1	0	2	0	0	11	14
December	0	0	0	0	0	0	0	1	4	1	2	1	1	0	0	0	1	0	1	0	0	1	0	0	1	0	10	4
Totals	0	0	6	3	30	20	38	25	33	31	31	14	19	10	14	8	17	8	13	6	6	4	6	13	4	5	217	147
Grand total																											364	

TABLE No. 8.—Typhoid fever by age groups, 1931.

Month.	Under 1 year.		1 to 4.		5 to 9.		10 to 14.		15 to 19.		20 to 24.		25 to 29.		30 to 34.		35 to 39.		40 to 44.		45 to 49.		50 to 59.		60 years and over.		Not stated.		Tota's.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
January	0	0	0	0	0	0	2	0	2	0	3	1	1	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	8	5
February	0	0	0	0	0	0	2	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
March	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
April	0	0	0	1	0	0	1	2	2	0	1	0	0	1	0	2	1	0	2	0	1	0	0	0	0	0	0	0	8	6
May	0	0	0	0	0	0	0	0	2	3	0	0	0	1	0	0	0	2	2	0	0	1	0	0	2	0	0	0	6	7
June	0	0	0	0	2	0	5	1	0	1	2	1	0	0	0	1	1	2	0	0	0	0	0	0	1	0	0	0	11	6
July	0	0	1	1	5	1	3	4	6	1	4	1	2	1	2	4	1	0	0	2	2	0	1	2	0	0	0	0	27	17
August	0	0	0	0	4	2	3	1	1	2	1	3	5	0	3	0	0	1	2	1	2	0	1	1	0	0	0	0	22	11
September	0	0	1	0	7	5	5	3	1	4	2	2	4	2	4	1	1	1	0	2	0	0	0	0	2	1	0	0	27	21
October	0	0	2	1	5	4	5	2	2	5	3	4	2	0	0	3	0	1	0	0	1	1	0	1	0	1	0	0	20	23
November	0	0	0	0	1	1	3	2	4	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	5
December	0	0	0	1	2	1	1	1	0	0	0	0	1	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0	7	4
Totals	0	0	4	4	26	14	30	17	21	16	17	13	15	10	10	11	6	7	6	7	6	2	3	4	5	2	0	0	149	107
Grand total																														256

TABLE No. 9.—Diphtheria by age groups, 1930.

Month.	Under 1 year.		1 to 4.		5 to 9.		10 to 14.		15 to 19.		20 to 24.		25 to 29.		30 to 34.		35 to 39.		40 to 44.		45 to 49.		50 to 59.		60 years and over.		Not stated.		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
January	1	1	11	9	10	7	7	2	2	5	1	5	2	5	4	6	1	1	0	1	0	1	1	1	0	1	0	0	40	45
February	1	0	12	4	7	9	0	1	0	3	1	8	1	0	1	2	1	2	0	1	0	1	0	0	0	0	0	0	23	32
March	1	0	9	6	7	6	4	1	5	5	2	3	3	1	1	1	1	4	0	1	1	0	0	0	0	1	0	0	34	29
April	0	0	4	2	3	5	1	3	2	1	2	4	1	3	0	0	0	0	1	0	0	1	0	0	0	0	0	0	14	19
May	0	1	0	3	5	7	8	3	2	3	1	0	1	5	1	0	0	0	0	1	0	0	0	0	0	0	0	0	18	23
June	1	0	1	1	5	5	3	1	2	2	3	4	0	5	2	4	0	3	1	0	0	0	0	0	0	0	0	0	18	25
July	0	0	3	1	2	0	2	1	2	2	2	3	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	13	8
August	0	0	7	2	3	2	2	3	1	4	1	4	0	3	1	1	2	0	1	1	0	0	0	0	0	2	0	0	18	22
September	0	1	8	2	12	8	2	3	1	4	0	0	1	1	0	2	0	1	0	0	0	0	0	1	0	0	0	0	24	23
October	0	0	8	3	24	15	5	3	2	2	1	3	1	1	2	1	1	0	0	0	0	1	0	0	0	0	0	0	44	29
November	1	1	10	11	12	17	4	6	5	4	1	2	0	3	3	0	0	1	0	2	0	0	0	0	0	0	0	0	36	47
December	1	2	10	12	27	18	5	4	8	8	1	4	1	1	3	4	1	0	0	0	0	1	0	1	0	0	0	0	57	55
Totals	6	6	83	56	117	99	43	31	32	43	16	40	13	28	18	22	7	12	3	7	1	5	1	3	0	4	0	0	340	356
Grand total																													696	

TABLE No. 10.—Diphtheria by age groups, 1931.

Month.	Under 1 year.		1 to 4.		5 to 9.		10 to 14.		15 to 19.		20 to 24.		25 to 29.		30 to 34.		35 to 39.		40 to 44.		45 to 49.		50 to 59.		60 years and over.		Not stated.		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
January	0	0	12	10	18	12	1	5	1	6	1	3	3	0	1	3	1	1	0	1	0	1	0	0	0	0	0	0	38	42
February	0	0	5	6	9	14	6	6	1	3	0	3	0	2	0	1	0	1	0	0	0	0	0	0	0	1	0	0	21	37
March	1	0	5	3	3	10	7	9	4	2	3	3	0	0	1	1	0	1	2	1	0	1	1	0	0	0	0	0	27	31
April	0	0	5	6	6	8	0	5	1	5	2	1	2	0	0	1	1	1	0	1	0	0	0	0	0	0	0	0	17	28
May	0	0	6	2	7	5	6	4	2	5	1	1	1	1	0	0	0	2	0	1	0	2	1	0	0	0	0	0	24	23
June	0	0	6	2	5	4	0	2	2	2	1	3	0	2	1	0	0	0	0	0	1	0	0	1	0	1	0	0	16	17
July	0	2	2	1	3	5	1	0	1	2	2	3	1	4	2	2	0	0	0	0	0	0	0	0	0	0	0	0	12	19
August	0	0	1	3	4	6	1	4	0	1	3	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	11	16
September	0	0	3	3	15	8	4	4	2	3	0	4	1	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	25	27
October	1	0	15	11	57	55	19	23	1	5	3	5	1	2	1	3	0	3	0	1	0	4	0	2	0	0	0	0	98	114
November	2	0	34	24	73	55	16	40	12	7	5	8	4	7	3	9	3	4	3	1	2	1	0	1	0	0	0	0	157	157
December	0	0	12	11	48	47	18	14	5	6	5	5	1	7	2	8	2	5	1	1	0	0	0	0	0	1	0	0	94	105
Totals	4	2	106	82	248	229	79	116	32	47	26	40	15	28	11	30	8	18	6	7	3	9	2	4	0	4	0	0	540	616
Grand total																													1,156	

TABLE No. 11.—Smallpox by age groups, 1930.

Month.	Under 1 year.		1 to 4.		5 to 9.		10 to 14.		15 to 19.		20 to 24.		25 to 29.		30 to 34.		35 to 39.		40 to 44.		45 to 49.		50 to 59.		60 years and over.		Not stated.		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
January	3	1	7	6	14	29	20	22	18	16	12	9	17	8	10	11	11	5	4	10	9	7	8	7	7	3	0	0	140	134
February	2	1	5	8	12	29	27	28	25	22	16	15	9	6	8	6	11	7	9	5	11	5	12	4	8	5	0	0	155	141
March	3	0	12	6	43	35	38	35	40	19	23	7	11	6	7	13	15	11	17	3	10	10	16	14	14	4	6	10	255	173
April	1	2	12	16	41	37	28	36	27	13	24	10	17	10	15	10	9	8	10	6	13	4	9	7	8	9	11	7	225	175
May	3	2	3	2	19	22	14	18	11	10	10	11	13	5	4	9	14	4	8	8	7	3	11	5	6	3	4	4	127	106
June	3	1	9	13	20	28	24	28	11	10	13	5	8	9	6	6	3	12	24	9	6	7	11	6	9	11	9	7	156	152
July	1	0	1	0	4	0	4	4	4	3	4	2	2	3	3	2	3	3	1	3	1	5	4	5	6	1	3	2	41	33
August	0	0	0	0	1	0	3	3	2	3	2	0	2	1	2	0	0	1	1	0	1	0	2	2	0	1	0	0	16	11
September	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	1	3	0	0	0	1	0	1	0	0	0	7	3
October	0	1	0	1	4	3	6	2	4	7	2	1	0	0	1	0	1	1	0	0	2	0	3	0	0	1	2	1	25	18
November	1	0	4	3	7	16	12	10	5	3	1	3	0	2	3	1	4	1	2	2	1	0	4	0	1	1	7	9	52	51
December	0	1	8	10	29	20	29	17	19	10	6	5	4	3	5	5	8	6	10	4	5	3	7	6	2	2	1	1	133	93
Totals	18	9	61	66	194	219	206	203	166	117	113	68	83	53	64	63	79	60	89	50	66	44	88	56	62	41	43	41	1,332	1,090
Grand total																													2,422	

TABLE No. 12.—Smallpox by age groups, 1931.

Month.	Under 1 year.		1 to 4.		5 to 9.		10 to 14.		15 to 19.		20 to 24.		25 to 29.		30 to 34.		35 to 39.		40 to 44.		45 to 49.		50 to 59.		60 years and over.		Not stated.		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
January	2	1	16	16	54	49	40	35	41	18	31	17	14	20	27	9	17	11	16	12	17	14	14	17	13	7	2	3	304	229
February	1	2	12	14	34	42	16	27	28	17	22	13	14	9	11	11	12	5	18	8	14	10	19	10	6	4	1	0	208	172
March	1	3	11	17	41	43	39	45	31	25	31	10	21	11	14	9	10	17	18	11	17	10	23	19	10	5	1	1	268	226
April	4	1	11	17	49	51	38	28	27	15	31	21	8	12	20	8	14	12	16	11	12	9	16	15	10	6	5	4	261	210
May	1	1	11	4	17	22	24	22	20	4	10	5	16	9	12	9	10	9	10	7	15	6	17	12	17	5	1	0	181	115
June	2	4	13	16	27	13	15	14	14	14	5	8	14	6	9	2	4	5	4	6	8	5	8	2	6	1	0	1	129	97
July	1	0	1	1	5	4	8	5	2	4	2	2	1	3	2	1	3	0	2	1	2	1	4	2	2	0	1	0	36	24
August	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	1	0	0	0	5	1
September	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	4	1
October	0	0	0	0	1	2	1	3	0	0	1	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	6
November	0	0	1	2	4	2	2	3	0	1	2	3	2	0	1	2	2	2	1	1	0	0	0	0	0	0	0	0	15	16
December	1	0	0	1	0	0	0	0	0	2	2	1	3	0	4	0	0	1	0	0	0	0	0	0	0	1	0	0	10	6
Totals	13	12	76	89	234	228	183	182	164	100	137	80	95	70	100	52	72	63	87	57	85	55	103	77	66	29	11	9	1,426	1,103
Grand total																													2,529	

TABLE No. 13.—Scarlet fever by age groups, 1930.

Month.	Under 1 year.		1 to 4.		5 to 9.		10 to 14.		15 to 19.		20 to 24.		25 to 29.		30 to 34.		35 to 39.		40 to 44.		45 to 49.		50 to 59.		60 years and over.		Not stated.		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
January	4	5	48	49	122	135	62	72	22	26	6	19	10	13	8	2	3	3	2	4	0	0	2	1	1	0	3	3	293	332
February	3	3	45	50	107	122	65	84	22	30	10	11	5	13	4	7	2	1	0	0	0	0	2	0	0	0	0	3	265	324
March	4	3	40	41	115	114	62	67	25	32	14	17	5	13	1	9	0	3	1	1	0	1	0	0	0	0	3	3	270	304
April	0	3	43	37	94	93	69	68	23	30	6	20	8	7	3	8	1	4	2	2	0	1	1	0	1	0	3	0	254	273
May	1	2	19	18	57	57	22	24	12	13	4	7	3	4	3	6	1	1	1	0	0	0	0	1	0	0	0	3	123	136
June	0	1	8	18	26	27	6	17	5	5	1	2	0	4	0	2	0	2	0	0	0	0	0	0	0	0	0	1	46	79
July	1	1	9	16	23	9	10	12	3	1	1	2	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	48	44
August	0	0	9	4	10	7	9	3	1	1	0	1	1	2	1	0	1	2	0	0	0	0	0	0	0	0	0	0	32	20
September	1	1	14	11	22	33	13	11	4	3	1	3	0	4	0	1	0	1	0	0	0	0	1	0	0	0	3	2	59	70
October	1	0	20	18	47	57	9	22	3	8	0	11	0	1	0	2	1	3	0	1	0	1	0	0	0	0	1	2	82	126
November	4	5	9	29	50	48	14	16	9	2	5	3	4	6	1	4	1	0	0	0	0	0	0	1	0	0	1	0	98	114
December	1	2	11	25	34	48	20	27	10	11	2	10	4	2	2	5	1	1	0	1	0	0	0	0	0	0	1	0	86	132
Totals	20	26	275	316	707	750	361	423	139	162	50	106	40	71	23	47	12	21	6	9	0	3	6	3	2	0	15	17	1,656	1,954
Grand total																													3,610	

TABLE No. 14.—Scarlet fever by age groups, 1931.

Month.	Under 1 year.		1 to 4.		5 to 9.		10 to 14.		15 to 19.		20 to 24.		25 to 29.		30 to 34.		35 to 39.		40 to 44.		45 to 49.		50 to 59.		60 years and over.		Not stated.		Totals.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
January	2	2	23	20	51	62	25	38	7	9	5	10	6	0	0	2	1	1	0	1	0	2	0	0	0	0	0	0	120	147
February	1	3	34	33	36	63	20	23	14	13	8	7	3	5	1	7	1	6	0	1	0	0	0	0	0	1	2	2	120	164
March	4	3	30	29	61	59	29	25	6	8	3	7	0	7	2	3	0	2	0	0	0	0	0	1	0	0	1	2	136	146
April	2	2	21	28	61	56	22	26	6	8	2	3	2	5	1	1	1	3	0	1	1	0	0	1	0	0	1	0	120	134
May	3	2	18	16	31	24	14	23	5	8	4	3	3	5	2	2	0	3	1	0	0	0	0	0	0	0	2	1	83	87
June	0	0	17	7	19	11	2	8	3	2	1	2	1	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	43	34
July	0	0	6	9	7	13	2	7	2	2	1	1	3	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	22	34
August	0	0	4	7	13	16	4	5	2	2	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	26	31
September	0	1	11	6	18	22	6	12	1	5	2	4	2	1	0	1	2	1	0	1	0	0	0	0	0	0	0	0	42	54
October	0	1	25	16	74	73	24	24	6	7	2	3	1	2	0	3	0	3	0	0	0	0	0	0	0	0	0	0	132	132
November	2	1	31	27	73	61	23	29	9	6	0	7	2	0	1	2	0	3	1	2	0	0	1	0	0	0	0	1	143	139
December	3	2	27	31	52	60	31	26	5	5	3	7	4	5	1	4	0	4	0	2	1	0	0	0	0	0	1	1	128	147
Totals	17	17	247	229	496	520	202	246	66	75	33	54	27	32	10	28	5	27	2	9	2	2	1	2	0	1	7	7	1,115	1,249
Grand total																													2,364	

TABLE No. 15.—Prevalence of certain diseases, by cities and counties, 1930-'31.

Counties and Cities.	Diphtheria.				Typhoid fever.				Smallpox.			
	1930.		1931.		1930.		1931.		1930.		1931.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Allen	0	0	11	1	3	0	22	4	4	0	1	0
Anderson	4	2	16	0	5	0	4	0	14	0	3	0
Atchison, except	3	0	8	2	5	0	0	0	0	0	5	0
Atchison city	3	0	6	0	3	0	0	0	1	0	2	0
Barber	0	0	1	0	0	0	2	0	2	0	3	0
Barton	5	0	19	1	5	2	6	1	29	0	13	0
Bourbon, except	6	0	18	0	5	0	5	2	40	0	28	0
Fort Scott	15	1	14	0	19	3	5	3	46	0	139	3
Brown	3	1	2	0	6	1	3	1	4	0	1	0
Butler	20	2	35	3	1	0	1	0	13	0	37	0
Chase	0	0	0	0	1	0	2	0	4	0	1	0
Chautauqua	1	0	9	2	1	0	1	1	0	0	17	0
Cherokee	16	5	12	1	9	0	1	0	55	1	92	1
Cheyenne	0	0	0	0	1	0	7	1	0	0	2	0
Clark	1	1	0	0	2	2	1	1	27	0	1	0
Clay	0	0	0	0	1	1	0	0	14	0	1	0
Cloud	0	0	0	0	3	1	0	0	52	0	1	0
Coffey	2	0	1	0	2	0	0	0	9	0	6	0
Comanche	1	0	0	0	3	1	1	1	1	0	1	0
Cowley	14	2	47	2	4	2	6	0	9	0	74	1
Crawford, except	34	5	17	0	7	1	5	1	105	0	5	0
Pittsburg	19	0	24	3	4	3	0	1	106	2	27	0
Decatur	0	0	0	0	1	0	0	0	11	0	4	0
Dickinson	3	0	14	0	2	0	4	1	36	0	11	0
Doniphan	5	0	0	0	10	2	0	0	5	0	3	0
Douglas, except	3	2	0	0	1	0	1	0	0	0	15	0
Lawrence	3	0	0	0	1	1	1	0	2	0	22	0
Edwards	2	0	3	0	5	1	0	0	4	1	6	0
Elk	2	0	2	0	0	0	1	1	3	0	15	0
Ellis	15	1	24	3	0	0	4	1	36	0	1	0
Ellsworth	2	1	5	0	3	0	0	0	8	0	27	0
Finney	2	0	3	0	1	0	3	0	29	0	41	0
Ford	3	0	1	0	4	0	2	0	17	0	5	0
Franklin	39	2	17	1	2	0	8	1	94	0	195	0
Geary	2	0	3	0	4	0	1	0	2	0	1	0
Gove	0	1	2	0	0	0	1	0	20	0	0	0
Graham	2	1	1	0	0	0	0	0	7	0	6	1
Grant	0	0	1	0	0	0	0	0	6	0	0	0
Gray	1	0	6	0	3	0	0	0	21	0	12	0
Greeley	0	0	0	0	0	0	0	0	4	0	0	0
Greenwood	2	1	6	0	4	0	3	1	0	0	10	0
Hamilton	1	0	3	1	0	0	0	0	17	0	1	0
Harper	1	0	14	0	1	0	6	1	32	0	14	0
Harvey	3	0	27	0	14	1	4	0	12	0	7	0
Haskell	0	0	0	0	1	0	0	0	12	0	0	0
Hodgeman	0	0	2	1	0	0	1	0	16	0	0	0
Jackson	1	1	4	0	1	0	2	1	3	0	1	0
Jefferson	1	0	27	0	0	0	0	1	0	0	0	0
Jewell	1	0	0	0	3	1	1	0	7	0	28	0
Johnson	3	0	10	2	2	0	2	0	6	0	7	0
Kearny	0	0	0	0	0	0	0	0	15	0	16	0
Kingman	0	0	0	0	0	0	0	0	17	0	2	0
Kiowa	3	0	0	0	0	0	0	0	5	0	9	0
Labette, except	19	1	10	1	1	0	4	0	62	0	1	0
Parsons	6	0	2	0	0	0	0	0	63	0	3	0
Lane	1	0	0	0	0	0	2	0	18	0	1	0
Leavenworth, except	6	0	15	1	4	0	0	1	1	0	6	0
Leavenworth city	54	2	16	1	4	1	0	0	0	0	0	0
Lincoln	4	0	3	0	5	0	4	0	18	0	2	0
Linn	2	0	9	1	2	0	3	0	2	0	13	0
Logan	0	0	0	0	1	0	0	0	17	0	1	0
Lyon	1	1	6	0	11	1	7	1	11	0	4	0
Marion	0	0	2	0	1	0	1	0	13	0	13	0
Marshall	0	0	1	0	7	0	6	2	7	0	2	0
McPherson	3	0	1	0	8	1	3	0	16	0	16	0
Meade	1	0	4	0	0	0	5	0	11	0	26	0
Miami	2	1	18	0	1	0	5	0	41	0	125	0

TABLE No. 15.—Prevalence of certain diseases, by cities and counties, 1930-'31—CONTINUED.

COUNTIES AND CITIES.	Diphtheria.				Typhoid fever.				Smallpox.			
	1930.		1931.		1930.		1931.		1930.		1931.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Mitchell	5	0	0	0	1	1	1	0	15	0	10	0
Montgomery, except	29	3	63	4	14	5	3	0	5	0	15	0
Coffeyville	19	3	18	1	11	0	4	2	24	0	46	0
Morris	2	1	0	0	1	0	0	0	0	0	33	0
Morton	1	0	0	0	0	0	0	0	13	0	2	0
Nemaha	4	0	6	0	0	0	0	0	2	0	0	0
Neosho	8	2	9	1	1	0	0	0	2	0	0	0
Ness	1	0	1	0	2	1	0	0	21	0	1	0
Norton	1	0	2	0	1	0	2	0	16	0	3	0
Osage	5	0	0	0	5	2	1	0	0	0	32	0
Osborne	9	1	3	0	5	1	3	0	4	1	96	0
Ottawa	2	0	1	0	0	0	3	0	13	0	10	1
Pawnee	0	0	8	0	9	2	1	1	5	0	12	0
Phillips	1	0	0	0	0	1	2	0	36	0	18	0
Pottawatomie	0	0	0	0	0	0	2	0	5	0	1	0
Pratt	0	0	9	1	9	1	0	0	12	0	9	0
Rawlins	1	0	0	0	0	0	1	0	0	0	3	0
Reno, except	1	0	11	1	5	1	7	0	21	0	47	0
Hutchinson	10	1	58	2	12	4	9	2	110	0	104	0
Republic	1	0	18	0	2	0	1	0	8	0	5	0
Rice	2	1	5	0	4	0	2	0	3	0	82	0
Riley	3	0	2	0	3	0	1	0	1	0	18	0
Rooks	2	0	0	0	1	0	1	0	28	0	5	0
Rush	8	0	3	1	0	0	0	0	41	0	2	0
Russell	4	0	3	1	1	0	0	0	11	0	3	0
Saline, except	3	0	2	0	1	0	0	0	10	0	3	0
Salina	10	0	1	0	5	1	0	0	5	0	4	0
Scott	3	1	0	0	2	0	3	0	60	0	4	0
Sedgwick, except	12	0	41	0	3	0	6	0	4	0	80	0
Wichita	43	5	159	12	11	6	6	1	76	0	539	0
Seward	1	0	4	2	2	1	3	0	27	0	21	0
Shawnee, except	7	2	5	0	3	0	8	0	15	0	2	0
Topeka	34	5	48	4	8	2	6	2	56	0	21	0
Sheridan	1	0	0	0	0	0	0	0	20	0	2	0
Sherman	0	0	0	0	0	0	0	0	3	0	29	0
Smith	0	0	0	0	1	0	2	1	25	0	7	0
Stafford	1	0	6	0	2	0	0	0	10	0	7	0
Stanton	1	0	2	0	0	0	0	0	32	0	12	0
Stevens	8	1	0	0	1	0	0	0	58	0	2	0
Sumner	6	0	35	2	13	1	1	0	34	0	38	0
Thomas	2	0	1	0	1	0	0	0	0	0	1	0
Trego	9	0	1	0	3	0	3	0	45	0	25	0
Wabaunsee	2	0	2	0	2	0	0	0	13	0	8	0
Wallace	0	0	0	0	0	0	0	0	7	0	0	0
Washington	2	1	9	0	0	0	0	0	61	0	5	0
Wichita	0	0	0	0	0	0	0	0	1	0	2	0
Wilson	0	0	3	0	6	0	3	1	7	0	2	0
Woodson	6	0	3	0	2	1	2	0	3	0	12	0
Wyandotte, except	9	0	30	2	3	0	1	0	9	0	3	0
Kansas City	71	6	82	7	10	0	11	2	183	1	11	0
Total	696	67	1,156	68	364	57	256	41	2,422	6	2,529	7

TABLE No. 15.—Prevalence of certain diseases, by cities and counties, 1930-'31—CONTINUED.

COUNTIES AND CITIES.	Scarlet fever.				Measles.			
	1930.		1931.		1930.		1931.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Allen	15	0	10	0	79	0	2	0
Anderson	8	0	28	0	107	0	3	0
Atchison, except	52	0	2	0	9	0	61	0
Atchison city	43	0	32	2	2	0	6	0
Barber	17	0	2	0	6	0	2	0
Barton	31	2	14	0	253	2	7	0
Bourbon, except	16	1	10	0	35	0	1	0
Fort Scott	18	0	11	0	182	1	2	0
Brown	101	1	8	0	296	0	13	0
Butler	118	0	56	0	1,125	6	28	0
Chase	7	0	5	0	74	0	3	0
Chautauqua	6	0	0	0	88	0	68	1
Cherokee	109	0	40	2	312	3	0	0
Cheyenne	25	0	4	0	2	0	4	0
Clark	11	0	8	0	52	1	1	0
Clay	7	1	43	0	45	1	2	0
Cloud	38	1	37	0	73	0	22	1
Coffey	25	0	14	0	28	0	3	0
Comanche	1	0	34	0	5	0	0	0
Cowley	207	1	48	0	217	1	37	1
Crawford, except	38	0	4	0	157	2	5	0
Pittsburg	30	4	26	0	124	1	2	0
Decatur	30	1	12	0	62	3	2	0
Dickinson	13	0	15	0	400	1	8	0
Doniphan	19	1	47	1	8	0	16	1
Douglas, except	7	0	4	0	19	0	3	0
Lawrence	4	0	7	0	27	0	2	0
Edwards	9	0	16	0	28	0	3	0
Elk	22	0	9	0	18	0	5	0
Ellis	3	0	3	0	49	2	7	0
Ellsworth	7	0	7	0	15	0	149	0
Finney	5	0	16	0	29	1	2	0
Ford	30	0	17	0	234	2	3	0
Franklin	33	0	22	0	76	1	10	0
Geary	22	0	35	0	42	0	64	0
Gove	4	0	2	0	23	0	0	0
Graham	14	1	1	0	2	0	1	0
Grant	17	0	15	0	68	1	0	0
Gray	19	0	19	1	241	0	1	0
Greeley	2	0	0	0	2	0	0	0
Greenwood	55	0	75	0	41	0	10	0
Hamilton	8	1	2	0	44	0	0	0
Harper	15	0	31	0	124	0	3	0
Harvey	32	0	44	1	60	0	57	0
Haskell	2	0	6	1	1	0	0	0
Hodgeman	1	0	8	0	38	1	0	0
Jackson	12	0	4	0	38	0	3	0
Jefferson	9	0	6	0	58	0	8	0
Jewell	13	0	27	0	149	1	5	0
Johnson	22	0	19	0	3	0	107	0
Kearny	1	0	0	0	24	0	0	0
Kingman	28	0	4	0	10	0	7	0
Kiowa	17	0	4	0	121	0	2	0
Labette, except	7	0	29	0	111	1	6	0
Parsons	14	0	31	0	150	0	3	0
Lane	0	0	2	0	30	0	1	0
Leavenworth, except	14	0	7	0	16	0	7	0
Leavenworth city	22	0	15	0	49	1	3	0
Lincoln	3	0	4	0	12	0	4	0
Linn	23	0	20	0	11	0	2	0
Logan	7	0	7	0	7	0	3	0
Lyon	58	0	42	1	150	0	28	0
Marion	11	1	53	1	147	2	5	0
Marshall	32	0	20	0	17	0	3	0
McPherson	5	0	21	0	101	1	2	0
Meade	69	0	4	0	125	0	0	0
Miami	8	0	15	0	5	0	0	0

TABLE No. 15.—Prevalence of certain diseases, by cities and counties, 1930-'31—CONTINUED.

COUNTIES AND CITIES.	Scarlet fever.				Measles.			
	1930.		1931.		1930.		1931.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Mitchell	31	0	11	0	4	1	2	0
Montgomery, except	136	0	19	0	359	4	56	0
Coffeyville	10	0	11	0	321	3	4	0
Morris	3	0	4	0	45	0	0	0
Morton	1	0	0	0	60	2	0	0
Nemaha	19	0	18	0	90	0	1	0
Neosho	2	0	8	0	97	2	4	0
Ness	1	0	10	0	40	1	6	0
Norton	57	0	32	2	98	0	2	0
Osage	47	1	27	0	131	0	18	0
Osborne	25	1	11	0	23	1	1	0
Ottawa	8	1	64	0	255	1	4	0
Pawnee	2	0	12	0	212	1	2	0
Phillips	31	1	11	0	89	0	4	0
Pottawatomie	9	0	16	0	4	0	0	0
Pratt	31	0	8	0	24	1	1	0
Rawlins	13	0	34	1	20	0	1	0
Reno, except	31	0	17	0	6	0	9	0
Hutchinson	57	1	24	0	51	0	42	0
Republic	45	0	30	0	49	0	5	0
Rice	4	0	12	0	24	0	3	6
Riley	72	1	17	0	52	0	13	0
Rooks	11	0	2	0	45	0	0	0
Rush	8	1	3	0	26	0	3	0
Russell	7	0	1	0	44	4	9	0
Saline, except	4	0	2	0	24	0	0	0
Salina	24	2	24	0	20	0	10	0
Scott	1	0	8	0	32	0	2	0
Sedgwick, except	117	0	24	0	39	0	2	0
Wichita	429	7	107	0	651	9	81	1
Seward	38	0	51	0	104	0	2	0
Shawnee, except	35	0	45	2	223	0	25	0
Topeka	124	2	55	1	2,101	5	41	0
Sheridan	12	0	11	0	8	0	3	0
Sherman	0	0	2	0	39	0	70	0
Smith	31	1	95	2	112	1	1	0
Stafford	8	0	17	0	27	3	0	0
Stanton	0	0	3	0	22	0	0	0
Stevens	2	0	0	0	19	0	0	0
Sumner	116	1	76	3	136	0	3	0
Thomas	2	0	6	0	8	0	3	0
Trego	10	0	4	0	15	0	2	0
Wabaunsee	31	2	18	0	30	0	117	0
Wallace	1	0	0	0	3	1	3	0
Washington	10	0	7	0	25	0	1	0
Wichita	0	0	4	0	4	0	3	0
Wilson	25	0	15	0	69	1	1	0
Woodson	12	0	13	0	108	0	0	0
Wyandotte, except	26	1	29	0	7	1	32	0
Kansas City	220	6	163	2	44	1	373	3
Totals	3,610	45	2,364	23	12,295	79	1,782	8

TABLE No. 15.—Prevalence of certain diseases, by cities and counties, 1930-'31—CONTINUED.

COUNTIES AND CITIES.	Whooping cough.				Tuberculosis.			
	1930.		1931.		1930.		1931.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Allen	9	0	12	0	22	8	6	11
Anderson	40	0	6	0	4	3	0	1
Atchison, except	8	0	1	0	4	1	7	4
Atchison city	41	0	21	0	4	5	5	4
Barber	3	0	0	0	5	2	3	0
Barton	47	2	8	0	11	8	12	2
Bourbon, except	2	0	0	0	3	4	3	3
Fort Scott	31	0	4	0	15	9	17	8
Brown	38	0	39	0	21	3	14	7
Butler	85	0	40	0	33	11	37	10
Chase	23	0	37	0	1	0	1	0
Chautauqua	0	0	3	1	6	0	0	1
Cherokee	70	2	73	1	54	23	59	45
Cheyenne	0	1	0	0	3	2	1	1
Clark	4	0	27	0	2	0	1	0
Clay	27	0	0	0	16	3	9	3
Cloud	15	4	3	1	24	9	6	3
Coffey	21	0	13	0	3	4	4	2
Comanche	0	0	0	0	1	1	5	1
Cowley	19	0	155	1	35	13	43	14
Crawford, except	22	0	7	0	23	8	16	5
Pittsburg	7	2	0	0	17	5	16	6
Decatur	1	0	0	0	2	0	2	2
Dickinson	101	4	1	0	10	1	6	5
Doniphan	12	0	10	0	7	7	5	2
Douglas, except	0	0	0	0	8	5	5	3
Lawrence	13	0	4	0	7	7	10	4
Edwards	19	0	15	0	5	0	2	2
Elk	4	0	3	0	6	4	12	2
Ellis	10	2	0	0	4	4	11	4
Ellsworth	22	1	0	0	1	2	7	4
Finney	11	4	4	1	6	3	11	4
Ford	22	0	15	0	5	9	16	5
Franklin	71	3	2	0	7	5	23	8
Geary	120	0	4	0	7	3	19	3
Gove	1	0	0	0	6	0	1	0
Graham	15	0	0	0	2	1	0	1
Grant	9	0	3	0	2	1	0	0
Gray	17	1	34	0	3	2	1	4
Greeley	0	0	1	0	0	0	3	2
Greenwood	59	1	9	0	14	4	13	3
Hamilton	2	1	0	1	1	2	2	0
Harper	16	0	22	1	13	4	7	4
Harvey	71	0	64	1	23	6	27	12
Haskell	5	0	0	0	1	1	0	0
Hodgeman	0	0	0	0	0	1	2	0
Jackson	7	0	25	0	19	5	10	3
Jefferson	21	0	14	0	2	1	7	4
Jewell	25	0	5	0	7	3	4	1
Johnson	14	1	16	0	11	7	5	11
Kearny	0	0	0	0	3	1	2	0
Kingman	1	0	16	0	2	1	6	1
Kiowa	4	0	19	0	0	1	1	0
Labette, except	2	0	1	0	9	7	12	5
Parsons	0	0	1	0	13	6	13	8
Lane	0	0	0	0	0	0	0	0
Leavenworth, except	9	0	36	0	158	36	133	35
Leavenworth city	4	0	16	0	9	6	6	7
Lincoln	1	0	32	0	3	0	5	1
Linn	3	0	8	0	2	3	4	1
Logan	2	0	0	0	5	1	0	1
Lyon	107	1	141	0	23	7	16	12
Marion	105	0	5	1	27	3	12	6
Marshall	2	0	3	0	13	7	8	2
McPherson	64	2	20	1	19	3	10	6
Meade	0	0	2	0	2	0	0	1
Miami	0	0	0	0	21	15	23	18

TABLE No. 15.—Prevalence of certain diseases, by cities and counties, 1930-'31—CONCLUDED.

COUNTIES AND CITIES.	Whooping cough.				Tuberculosis.			
	1930.		1931.		1930.		1931.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Mitchell	5	1	2	0	8	4	7	3
Montgomery, except	23	0	23	1	30	16	41	15
Coffeyville	20	1	14	1	13	12	11	9
Morris	7	0	0	0	4	2	4	2
Morton	0	1	0	0	0	1	0	0
Nemaha	22	0	9	3	4	2	4	6
Neosho	5	0	13	1	9	8	16	5
Ness	1	0	3	0	0	2	2	1
Norton	33	0	4	0	10	41	5	43
Osage	25	0	3	0	8	4	5	2
Osborne	22	1	0	0	3	1	2	0
Ottawa	160	0	19	0	5	2	7	0
Pawnee	5	0	0	0	4	6	5	1
Phillips	14	0	6	0	10	0	6	4
Pottawatomie	1	0	2	0	1	2	4	6
Pratt	10	1	0	0	3	4	10	3
Rawlins	0	0	0	0	1	1	2	0
Reno, except	0	1	0	0	3	7	3	6
Hutchinson	4	0	3	0	9	8	18	8
Republic	2	0	2	0	9	1	8	0
Rice	9	0	1	0	5	1	6	2
Riley	43	0	5	0	15	2	7	0
Rooks	3	3	0	0	3	0	1	2
Rush	4	0	2	0	4	1	5	0
Russell	11	0	2	0	6	0	0	0
Saline, except	8	2	3	0	2	4	2	1
Salina	29	2	10	0	25	8	14	5
Scott	0	0	10	0	1	0	0	0
Sedgwick, except	14	0	19	0	5	10	4	8
Wichita	115	3	136	2	74	39	116	40
Seward	17	1	1	0	8	2	1	4
Shawnee, except	40	0	31	0	25	50	39	41
Topeka	457	4	176	0	74	15	65	20
Sheridan	41	0	2	0	3	1	3	1
Sherman	5	0	23	0	5	1	3	2
Smith	26	0	0	0	8	2	4	0
Stafford	4	1	1	0	3	1	0	1
Stanton	4	0	1	0	0	0	0	0
Stevens	0	0	0	0	0	0	0	0
Sumner	7	1	21	1	21	8	18	3
Thomas	47	0	0	0	1	1	2	0
Trego	1	0	0	0	0	0	2	1
Wabaunsee	30	1	0	0	5	2	1	1
Wallace	0	0	0	0	2	0	0	0
Washington	0	0	1	0	14	6	10	1
Wichita	0	0	0	1	0	0	1	2
Wilson	7	0	10	1	5	3	9	5
Woodson	5	0	9	0	2	2	3	0
Wyandotte, except	6	0	11	0	5	8	12	15
Kansas City	117	10	171	3	137	93	144	103
Totals	2,893	66	1,749	24	1,387	693	1,359	700

STATISTICAL REPORT

FOR THE FISCAL YEARS FROM JULY 1 TO JUNE 30.

	1930-'31.	*1931-'32.*
Letters and postals received	3,605	4,106
Letters written, individual	1,430	1,945
Letters written, multigraph	47,975	89,045
Postals sent	376	405
Telegrams received	55	50
Telegrams sent	64	64
Laboratory reports received	3,760	4,689
Laboratory reports sent to health officers	2,594	3,234
Contagious disease reports received and recorded	23,948	24,679
Notices of death reports received and checked	4,160	4,182
Tuberculosis case reports recorded	3,029	1,090
Tuberculosis recoveries	46	20
Tuberculosis improved and arrested	73	44
Tuberculosis removals	67	67
Tuberculosis death reports	584	754
Notices of discontinuances and appointments, received and forwarded	71	91
Tuberculosis packages sent out	871	1,006
Bulletins, pamphlets and miscellaneous forms sent out	10,289	7,072
Silver nitrate solution	242	196
Number of forms prepared for reports, records, pamphlets, placards, etc.,	523	640
Films and slides sent out	49	17
Articles prepared for publication	3	10
Press articles based on information from this office	55	28
Packages received	151	141
Bulletins received	605	679
Telephone calls, local—in	191	142
Telephone calls, local—out	336	264
Telephone calls, long-distance—in	128	64
Telephone calls, long-distance—out	150	156
Packages sent	316	386
Trips made—epidemiologist	34	35
Counties visited	64	84
Health officers interviewed	62	78
County commissioners interviewed—total sets	9	18
Epidemiological investigations	10	11
Addresses delivered	9	13
Total audiences	770	970
Days out of office	66	66
Indictments	1	1
Convictions	1	1
Office conferences	395	378
School certificates of award—immunization against diphtheria, smallpox and typhoid fever	251	209

TRIPS MADE BY EPIDEMIOLOGIST.

The following trips were made by the epidemiologist during the period of July 1, 1930, to June 30, 1932, inclusive:

1930.

July 22 ..... Council Grove, Morris county. Meeting with Chase, Wabaunsee and Morris county commissioners to discuss full-time health unit.

July 24 ..... Concordia, Cloud county. Investigation of smallpox quarantine violation.

August 5 ..... Newton, Harvey county. Meeting in regard to typhoid carriers.

August 26 ..... White City, Morris county. Investigation of public water supplies.

August 26 ..... Junction City, Geary county. In regard to cases of poliomyelitis.

August 27 ..... Richmond, Franklin county. To address joint meeting of Douglas, Franklin and Anderson County Medical Societies.

August 31 ..... Osage City, Osage county. In regard to case of poliomyelitis.

September 1 ..... Manhattan, Riley county. Meeting of Council Grove city commissioners at city water plant for conference with Earnest Boyce.

September 1 ..... White City, Morris county. Inspection of public drinking water supplies.

September 19 ..... Lyndon, Osage county. For filing information account of violation of State Board of Health regulations.

1930.

September 23..... Ottawa, Franklin county. To culture diphtheria contacts.

September 30..... Kansas City, Wyandotte county. Conference with Kansas City health officer in regard to city-wide quarantine account of infantile paralysis.

October 10..... Emporia, Lyon county. Visited health officer in regard to poliomyelitis and undulant fever cases.

October 27-30..... Fort Worth, Tex. Attended meeting of American Public Health Association.

November 2..... Norton, Norton county. Investigation of undulant fever at Norton sanatorium in company with Dr. H. E. Hasseltine, U. S. P. H. S.

November 18..... Ottawa, Franklin county. Meeting with Ottawa chamber of commerce with Dr. J. P. Kane, American Public Health Association representative.

November 19..... Iola, Allen county. Addressed Southeast Kansas Medical meeting—"Epidemiology of Poliomyelitis."

November 20..... Coffeyville, Montgomery county. Diphtheria immunization.

November 20..... Independence, Montgomery county. Diphtheria prevalence.

November 21..... Lansing, Leavenworth county. Investigation of epidemic meningitis.

November 26..... Lansing, Leavenworth county. Epidemic meningitis.

November 28..... Haven, Reno county. Epidemic meningitis.

December 9..... Quenemo, Osage county. Investigation of typhoid cases.

December 9..... Eureka, Greenwood county. Attended public health meeting.

December 10-11..... Fort Scott, Bourbon county. Investigation of typhoid epidemic.

December 16..... Lyndon, Osage county. Question of scarlet fever diagnosis.

1931.

January 5..... Ottawa, Franklin county. Meeting with county commissioners. Vaccination order against smallpox.

January 6..... Coffeyville, Montgomery county. Meeting with Mayor Lang, Coffeyville. Smallpox vaccination order and diphtheria immunization.

January 6..... Independence, Montgomery county. Meeting with Montgomery county commissioners in regard to diphtheria immunization.

January 14..... Lansing, Leavenworth county. Investigation of epidemic cerebrospinal meningitis at Kansas State Penitentiary.

January 16..... Russell, Russell county. Meeting with Russell county commissioners. Quarantine of diphtheria carriers.

January 31..... Osage City, Osage county. Investigation of smallpox among families south of Osage City.

February 2-3..... Beloit, Mitchell county. Conference with Mitchell county commissioners in regard to appointment of health officer.

February 17..... Ottawa, Franklin county. Meeting with Franklin county commissioners in regard to appointment of county health officer.

February 24..... Lawrence, Douglas county. Question of smallpox diagnosis.

February 24..... Ottawa, Franklin county. Culturing diphtheria carrier for virulence test.

March 20..... Goodland, Sherman county. Addressed Parent-Teacher Association on diphtheria prevention.

April 24..... Lawrence, Douglas county. Investigation of two cases of typhoid fever.

April 29..... Ottawa, Franklin county. Presented paper on epidemic cerebrospinal meningitis before Franklin County Medical Society.

May 26..... McPherson, McPherson county. Conference with county health officer.

May 26..... Canton, McPherson county. Inspection of sanitary conditions in Canton.

June 8..... Manhattan, Riley county. Quarantine violation.

June 8..... Waterville, Marshall county. Conferred with Marshall county health officer.

June 8..... Washington, Washington county. Diphtheria immunization.

June 8..... Courtland, Republic county. Smallpox epidemic in county.

June 8..... Oberlin, Decatur county. Called on Decatur county health officer.

1931.

June 9 — St. Francis, Cheyenne county. Investigation of typhoid cases in St. Francis and Cheyenne county.

June 10 — Goodland, Sherman. County health officer—diphtheria records.

June 11 — Osborne, Osborne county. Smallpox epidemic and diphtheria immunization.

June 18 — Leon, Butler county; Emporia, Lyon county; Leoti, Wichita county; Wellington, Sumner county. Visited Lyon, Butler, Wichita and Sumner county health departments and addressed Sumner County Medical Society on diphtheria prevention at evening meeting.

June 19 — Winfield, Cowley county; Sedan, Chautauqua county. Visited Cowley and Chautauqua county health officers in regard to diphtheria immunization.

July 8 — Council Grove, Morris county. Conference with county superintendent of public instruction—diphtheria immunization.

July 8 — Canton, McPherson county. Sanitary inspection.

July 8 — Hutchinson, Reno county. Conference with mayor of city and secretary of chamber of commerce.

July 9 — Sterling, Rice county. Conference—county health officer.

July 9 — Lyons, Rice county. Conference with county superintendent of schools regarding diphtheria immunization.

July 9 — Great Bend, Barton county. Conference—county health officer.

July 9 — Dodge City, Ford county. Conference with county health officer and secretary of chamber of commerce.

July 10 — Kinsley, Edwards county. Conference with county health officer. In company with Dr. James Wallace, of the United States Chamber of Commerce, visited local chambers in the interest of the Inter-Chamber Health Conservation Contest for 1931.

July 14 — Emporia, Lyon county. Meeting with health committee, chamber of commerce.

July 14 — Eureka, Greenwood county. Meeting with health committee, chamber of commerce.

July 15 — El Dorado, Butler county. Meeting with health committee, chamber of commerce.

July 15 — Winfield, Cowley county. Meeting with health committee, chamber of cemmerce.

July 15 — Arkansas City, Cowley county. Meeting with health committee, chamber of commerce.

July 16 — Wellington, Sumner county. Meeting with health committee, chamber of commerce.

July 16 — Wichita, Sedgwick county. Meeting with health committee, chamber of commerce.

July 17 — Newton, Harvey county. Meeting with health committee, chamber of commerce.

July 23 — Lawrence, Douglas county. Meeting with health committee, chamber of commerce.

July 24 — Atchison, Atchison county. Meeting with health committee, chamber of commerce.

July 20 — Mission Hills district, Johnson county. Investigation of diphtheria epidemic.

August 15 — Lansing, Leavenworth county. Investigation food poisoning state penitentiary.

August 15 — Leavenworth, Leavenworth county. Visited city health officer in regard to diphtheria immunization.

August 15 — Atchison, Atchison county. Visited county health officer in regard to diphtheria immunization. Visited the above places in company with Earnest Boyce, chief engineer, Kansas State Board of Health, who also inspected plumbing at local hospitals on orders of the State Board of Health.

August 24 — Soldier, Jackson county. Investigation of undulant fever cases.

September 7 — Council Grove, Morris county. Meeting with county commissioners on diphtheria immunization.

September 7 — Clay Center, Clay county. County health officer on diphtheria immunization.

September 7 — Osborne, Osborne county. Meeting with county commissioners in regard to diphtheria immunization.

September 8 — St. Francis, Cheyenne county. Meeting with county commissioners in regard to diphtheria immunization.

September 9 — Osborne, Osborne county. Closed with county commissioners for immunization of children in Osborne county.

1931.

September 30	Ottawa, Franklin county. Diphtheria immunization.
September 30	Iola, Allen county. Investigation of typhoid epidemic.
October 7	Holton, Jackson county. Conference with county commissioners regarding venereal-disease situation in the county.
October 20	Wamego, Pottawatomie county. Interviewed county health officer.
October 20	Manhattan, Riley county. Diphtheria immunization.
October 20	Salina, Saline county. Interviewed county health officer.
October 20	Great Bend, Barton county. Interviewed county health officer and secretary chamber of commerce on health conservation contest.
October 21	Hoisington, Barton county. Interviewed city manager in regard to appointment of health officer.
October 21	La Crosse, Rush county. Addressed Seventh District Kansas Federation of Women's Clubs.
October 22	Ellis, Ellis county. Interviewed president and secretary of chamber of commerce on health conservation contest.
October 22	Wakeeney, Trego county. Diphtheria immunization.
October 22	Ness City, Ness county. Interviewed county health officer on diphtheria immunization.
October 22	Jetmore, Hodgeman county. Interviewed county health officer on diphtheria immunization.
October 22	Larned, Pawnee county. Interviewed county health officer on diphtheria immunization.
October 23	St. John, Stafford county. Interviewed president of chamber of commerce on health conservation contest —health officer on diphtheria immunization.
October 23	Stafford, Stafford county. Interviewed president of chamber of commerce on health conservation contest.
October 24	Council Grove, Morris county. Evening meeting with county board of health on diphtheria immunization for children of the county.
November 8 and 9	Oberlin, Decatur county. Diphtheria immunization.
November 9	Atwood, Rawlins county. Meeting with county commissioners in regard to immunization of the children of Rawlins county against diphtheria.
November 13	Council Grove, Morris county. Meeting with county superintendent of schools in regard to completion of the immunization of the children of Morris county against diphtheria.
November 19	Reading, Lyon county. Investigation of typhoid fever cases in rural district south of Reading.
November 24	Pratt, Pratt county. Meeting with county commissioners in regard to diphtheria situation in the county.
December 7	Hoxie, Sheridan county. Meeting with county commissioners in regard to the immunization of the children of the county against diphtheria.
December 8	Stockton, Rooks county. Meeting with county commissioners in regard to immunization of the children of the county against diphtheria.
December 15	Lyndon, Osage county. Meeting with county health officer in regard to diphtheria immunization.
December 15	Burlington, Coffey county. Meeting with county health officer in regard to diphtheria immunization.
December 15	Yates Center, Woodson county. Meeting with county health officer in regard to diphtheria immunization.
December 15	Independence, Montgomery county. Meeting with county health officer in regard to diphtheria immunization.
December 16	Cherryvale, Montgomery county. Meeting with city school officials in regard to diphtheria immunization.
December 16	Coffeyville, Montgomery county. City health department—diphtheria immunization.
December 17	Chanute, Neosho county. County health department—diphtheria immunization.
December 17	Iola, Allen county. County health department—diphtheria immunization.
December 17	Garnett, Anderson county. County health department —diphtheria immunization.

1932.

January 4	Russell, Russell county. Meeting with county commissioners on diphtheria immunization.
January 6	Ellsworth, Ellsworth county. Meeting with county commissioners on diphtheria immunization.

1932.

January 19..... Newton, Harvey county. Meeting with county commissioners in regard to diphtheria immunization for children of Harvey county.

January 19..... Wichita, Sedgwick county. Conference with city health officer regarding diphtheria epidemic in the city of Wichita.

February 1..... Parker, Linn county. Investigation of scarlet fever cases in city schools of Parker.

February 11..... Salina, Saline county. Investigation of diphtheria situation.

February 12..... Pratt, Pratt county. Investigation of diphtheria situation in Pratt city schools, and conference with county officials in regard to immunization of rural children of county.

February 17..... Herndon, Rawlins county. Investigation of epidemic of cerebrospinal meningitis in rural district six miles west of Herndon.

February 18..... Atwood, Rawlins county. Conference with local physicians and health officer.

February 18..... Herndon, Rawlins county. Culturing of people residing in three rural school districts in contact with families where twelve cases have occurred.

February 24..... Lawrence, Douglas county. Visited county health officer in regard to diphtheria immunization.

February 24..... Olathe, Johnson county. Visited county health officer in regard to diphtheria immunization.

March 4..... Olathe, Johnson county. Meeting with county commissioners and Parent-Teacher Association in regard to diphtheria immunization of children of Johnson county.

March 7..... Manhattan, Riley county. Investigation of typhoid epidemic among students of State College.

March 14..... Winfield, Cowley county. Request of State Board of Administration that inspection be made of inmates of state institution for prevalence of communicable diseases.

April 6..... Burlington, Coffey county. Meeting with Coffey county commissioners in regard to diphtheria immunization of the children.

April 6..... Junction City. Geary county. Conference with city commissioners of finance.

April 7..... Phillipsburg, Phillips county. Meeting with county commissioners of Phillips county in regard to immunization of children against diphtheria.

April 16..... Wamego, Pottawatomie county. Investigation of suspected case of epidemic meningitis.

April 21..... Wichita, Sedgwick county. Conference with city health officer.

April 22..... Harper, Harper county. Addressed community club at Harper on communicable disease control.

April 29..... Hanover, Washington county. Investigation of typhoid fever.

May 5..... Kansas City, Wyandotte county. Attended State Medical Society meeting and discussed Doctor Davis' paper on smallpox.

May 12..... Junction City, Geary county. Addressed meeting of chamber of commerce on full-time health department.

June 7..... Osawatomie, Miami county. Inspected milk pasteurizing plant.

June 7..... Paola, Miami county. Interviewed physicians in Miami county regarding septic sore throat.

June 14..... Burlington, Coffey county. Conference with county superintendent of schools on diphtheria.

June 14..... Yates Center, Woodson county. Called on county health officer and county superintendent of schools in regard to diphtheria immunization.

June 14..... Iola, Allen county. Called on new county health officer.

June 14..... Fort Scott, Bourbon county. Conferred with city and county health officers.

June 15..... Pittsburg, Crawford county. Called on city health officer in regard to furnishing his reports more promptly.

June 15..... Parsons, Labette county. Consulted with city health officer in regard to typhoid carriers.

June 15..... Coffeyville, Montgomery county. Conferred with city health officer in regard to examination of food handlers.

June 16..... Independence, Montgomery county. Conferred with superintendent of schools; county health officer.

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June 16 — Grenola, Elk county. Conferred with county health officer in regard to diphtheria immunization.
June 20 — Leavenworth, Leavenworth county. Investigation of suspected typhoid cases.
June 22 — Manhattan, Riley county. Conference with county health officer in regard to typhoid carrier.
June 22 — Junction City, Geary county. Addressed Booster Club.
June 22 — Abilene, Dickinson county. Visited county health department.
June 22 — Salina, Saline county. Visited county health department.
June 22 — Russell, Russell county. Consulted with county health department in regard to diphtheria immunization.
June 23 — La Crosse, Rush county. Conferred with county health officer in regard to health conditions in county.
June 23 — Ness City, Ness county. Visited county health department.
June 23 — Dighton, Lane county. Visited county health officer.
June 23 — Scott City, Scott county. Conferred with county health officer in regard to diphtheria immunization.
June 23 — Leoti, Wichita county. Quarantine violations.
June 24 — Leoti, to F. M. Bagley farm. Investigation of scarlet fever death. Filed information against physician. Guilty and fined.

Biologicals distributed free during period July 1, 1930, to June 30, 1931, as follows:

Diphtheria antitoxin, units	3,782,500
Diphtheria toxin-antitoxin, cc	52,530
Diphtheria toxoid, cc	9,810
Typhoid vaccine, cc	20,345
Smallpox vaccine, points	24,805
Anti-meningococcic serum, 2 x 15 cc., pkgs	66
Tetanus antitoxin, units	211,000
Schick tests	750
Dick tests	100

Twenty-eight complete fourteen-day Pasteur treatments were arranged for through this office during this period.

Biologicals distributed free during period July 1, 1931, to June 30, 1932, as follows:

Diphtheria antitoxin, units	11,526,400
Diphtheria toxin-antitoxin, cc	159,180
Diphtheria toxoid, cc	56,303
Smallpox vaccine, points	13,370
Typhoid vaccine, cc. (Squibb's)	22,185
Typhoid vaccine, cc. (State Board of Health)	*3,025
Tetanus antitoxin, units	856,500
Schick tests	5,711
Erysipelas serum, pkgs	5
Anti-meningococcic serum, 2 x 15 cc., pkgs	21

HENRIETTA BROWN TUBERCULOSIS RESEARCH.

Report for the Biennium Ending June 30, 1932.

Dear Doctor Brown—The former report to the State Board of Health of the work of the Henrietta Brown Tuberculosis Research included one year's work in Harper county and one year in Crawford, under the direction of S. L. Cox, M. D., director, and Miss Sara Withers, R. N., tuberculosis nurse. The work was continued in Crawford county until July 1, 1931, with the same personnel, at which time a grand total of 9,015 children had been examined. Doctor Cox also held eight clinics for the Kansas Tuberculosis and Health Association outside of the county, with an average of fifteen patients.

On July 1, 1931, Doctor Cox resigned his position to accept one of a similar nature in Washington state, and C. S. Kenney, M. D., formerly superintendent

of the State Sanatorium for Tuberculosis, at Norton, Kan., was appointed in his stead. Miss Velma Long, R. N., of the Kansas Tuberculosis and Health Association, was assigned to this unit, and Miss Grace Kirk, of Newton, was employed as stenographer. The unit was transferred to Harvey county and the survey made along the same plan as was followed previously, with certain little changes to meet the existing conditions in the new community. We had the very best coöperation from the county commissioners, county health officer, county medical society, county superintendent, high-school and city school superintendents, parents, and the various organizations, and the public generally. A total of 2,458 were examined during this year, and a little later in the year tuberculin tests will be given to a large group, 346 or 14 per cent of whom are direct contacts with an open case of tuberculosis, with practically an equal number of malnourished, underweight children, who will take the same test, as a comparison.

The following is a detailed report of the last two years, together with a summary of all the work done by the Henrietta Brown Tuberculosis Research since it was established in 1928.

TABLE No. 16.—Summary of examinations for 1930-'31, Crawford county.

		Per cent.
Total number examined	3,925	....
Number 10 per cent or more underweight	872	22.2
Number 15 per cent or more overweight	182	4.6
Number with defective teeth	1,673	42.6
Number with definitely bad throats	461	11.7
Number with slight throat infection	1,247	31.7
Number with defective vision	674	17.1
Number with enlarged thyroid	417	10.6
Number with tonsils out	450	11.4
Number with definite heart disease	54	1.3
Number with slight heart disturbance	155	3.9
Number with impediment of speech	28	0.7
Number with active pulmonary tuberculosis	4	0.1
Number tuberculosis suspects or observation cases	106	2.7
Number vaccinated against smallpox	1,415	36.0
Number immunized against diphtheria	459	11.6

TABLE No. 17.—Summary of examinations for 1931-'32, Harvey county.

		Per cent.
Total number examined	2,458	....
Number 10 per cent or more underweight	496	20.1
Number 15 per cent or more overweight	144	5.8
Number with defective teeth	976	39.7
Number with infected tonsils	724	29.4
Number with infected throats	135	5.4
Number with defective vision	314	12.7
Number with dysfunction of thyroid	34	1.3
Number with tonsils removed	373	15.1
Number with organic heart lesions	48	1.9
Number with functional heart disturbance	60	2.4
Number with impediment of speech	18	0.7
Number mentally obtunded	29	1.1
Number with defective hearing	69	2.8
Number with defective posture	920	37.4
Number with glandular involvement	592	24.1
Number of "tuberculosis suspects" or observation cases	691	28.1
Number vaccinated against smallpox	898	36.5
Number immunized against diphtheria	734	29.8
Number of home calls made by Miss Long	694	....
Number of people addressed by Doctor Kenney	3,058	....
Number of people addressed by Miss Long	2,332	....

	Number of clinics.	*Number examined in clinics.*
Newton	17	74
Outside of Harvey county	28	536
Legionville Preventorium	5	71
Totals	50	681

TABLE No. 18.—Summary of examinations, 1928-'32.

		Per cent.
Total number examined	11,473	....
Number 10 per cent or more underweight	2,326	20.2
Number 15 per cent or more overweight	653	5.6
Number with defective teeth	4,503	39.2
Number with throat infections	5,273	45.9
Number with defective vision	1,661	14.4
Number with dysfunction of thyroid	1,189	10.3
Number with tonsils removed	1,566	13.6
Number with organic heart lesions	162	0.4
Number with functional heart disturbance	501	4.3
Number with speech impediment	91	0.7
Number with active pulmonary tuberculosis	9	0.07
Number of "tuberculosis suspects" or observation cases	918	8.0
Number vaccinated against smallpox	3,154	2.7
Number immunized against diphtheria	1,862	16.2

During the month of July, Newton preschool children will be examined, and in September and October the examination of children in the Newton schools will be completed. The work will then be taken to Rice county, with headquarters at Lyons, for the year 1932-'33.

Respectfully submitted,

C. S. KENNEY, M. D., *Director.*

DIVISION OF VENEREAL DISEASES.

Report for the Biennium Ending June 30, 1932.

Fiscal Year 1930-'31.

Letters received	228
Letters sent out	350
Requests for educational literature	284
Pamphlets sent out per request	1,571
Pamphlets sent out miscellaneously	1,477
Posters sent out	0
Slides sent out	0
Arsphenamine, etc., sent out	7,380
Arsphenamine, etc., purchased	7,610
Venereal disease cases reported:	
Syphilis	743
Gonorrhœa	602
Chancroid	1
Number of Wassermann (or similar) tests	26,099
Number of smears for gonococci	2,355

Fiscal Year 1931-'32.

Letters received	72
Letters sent out	57
Requests for educational literature	229
Pamphlets sent out per requests	1,180
Pamphlets sent out miscellaneously	2,309
Posters sent out	0
Slides sent out	0
Arsphenamine, etc., sent out	5,906
Arsphenamine, etc., purchased	9,350
Venereal disease cases reported:	
Syphilis	802
Gonorrhœa	691
Chancroid	1
Number of Wassermann (or similar) tests	38,605
Number of smears for gonococci	3,604

TABLE No. 19.—Venereal-disease cases admitted to clinics during the biennium ending May 31, 1932.

Clinic.	Date.	Gonorrhœa.		Syphilis.		Totals.			
						Gonorrhœa.		Syphilis.	
		M.	F.	M.	F.	M.	F.	M.	F.
Wichita	1930-'31	26	41	57	57	26	87	138	140
	1931-'32	0	46	81	83				
Topeka	1930-'31	42	18	39	39	87	37	94	94
	1931-'32	45	19	55	55				
Kansas City	1930-'31	35	36	50	32	127	92	138	92
	1931-'32	92	56	88	60				
Lansing	1930-'31	66	313	124	126	125	626	355	295
	1931-'32	59	313	231	169				
Totals	1930-'31	169	408	270	254	365	842	725	621
	1931-'32	196	434	455	367				
Grand totals		365	842	725	621	1,207		1,346	

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TABLE No. 20.—Treatments in clinics, including arsphenamine, biennium ending May 31, 1932.

Clinic.	Date.	Gonorrhœa.		Syphilis.		Totals.			
						Gonorrhœa.		Syphilis.	
		M.	F.	M.	F.	M.	F.	M.	F.
Wichita	1930-'31	170	1,044	1,316	1,344	170	2,175	3,254	3,727
	1931-'32	0	1,131	1,938	2,383				
Topeka	1930-'31	513	540	2,197	1,965	1,473	1,771	4,872	4,916
	1931-'32	960	1,231	2,675	2,951				
Kansas City	1930-'31	248	347	735	520	1,649	1,091	2,105	1,525
	1931-'32	1,401	744	1,370	1,005				
Lansing	1930-'31	699	16,310	4,128	4,433	1,548	32,957	10,148	10,143
	1931-'32	849	16,647	6,020	5,710				
Totals	1930-'31	1,630	18,241	8,376	8,262	4,840	37,994	20,379	20,311
	1931-'32	3,210	19,753	12,003	12,049				
Grand totals		4,840	37,994	20,379	20,311	42,834		40,690	

TABLE No. 21.—Treatments in clinics—doses of arsphenamine administered, biennium ending May 31, 1932.

Clinic.	Date.	Syphilis.		Syphilis—totals.	
		M.	F.	M.	F.
Wichita	1930-'31	651	673	1,613	1,925
	1931-'32	962	1,252		
Topeka	1930-'31	1,060	826	2,217	1,780
	1931-'32	1,157	954		
Kansas City	1930-'31	432	318	1,201	835
	1931-'32	769	517		
Lansing	1930-'31	1,173	1,754	3,311	3,609
	1931-'32	2,138	1,855		
Totals	1930-'31	3,316	3,571	8,342	8,149
	1931-'32	5,026	4,578		
Grand totals		8,342	8,149	16,491	

DIVISION OF PUBLIC HEALTH LABORATORY.

Report for the Biennium Ending June 30, 1932.

Dear Doctor Brown—Submitted herewith is the report of the Public Health Laboratory of the State Board of Health for the sixteenth biennium, ending June 30, 1932.

Growth of this division has not met with expectations, due probably to the conditions of affairs generally, yet the amount of work coming to this laboratory, purely public health in nature, is rapidly increasing in quantity. The problem of properly handling this material for examination is becoming acute, and the laboratory is finding itself in the same position as to personnel in which it was placed three years ago. At that time it was making 40,000 examinations annually, with the services of two full-time and one half-time persons. Now that 60,000 examinations annually are being made, besides the additional work the laboratory has undertaken each year, it will be necessary to anticipate the need of another technician in the autumn of 1933. An increase of $1,500 in the annual appropriation should be granted for this purpose.

Also the fact should be borne in mind that the present quarters of the laboratory are very crowded and generally unsatisfactory, and that some plan should be anticipated for altering this condition during the year 1933. For this purpose a sum of not less than $800 should be included in the annual appropriation until permanent quarters in a state building may be obtained.

As regards equipment, it is necessary that a satisfactory refrigerator be obtained immediately. What refrigerating equipment is in the laboratory now may be enlarged in a satisfactory manner for the sum of $529. It is also urged that a large-size centrifuge be obtained at a very early date, since those in use at this time are not only inadequate but are worn out. The desirable type of centrifuge may be purchased for $407.10. In addition to this the laboratory is in dire need of an automatic pipetting machine ($175), a new microscope ($228), and an air compresser ($105). This equipment should be purchased at the earliest possible date.

In the fifteenth biennial report it was urged that the establishment of a branch laboratory be taken into consideration in order to increase the effectiveness of the activities of the county health officers. With the present high state of public health development, branch laboratories are now indeed regarded as indispensable in public health work, and therefore one is proposed for southeastern Kansas at the beginning of the fiscal year of 1933. This branch laboratory should be established by an initial appropriation of $3,000 for the first year, and should be maintained by $2,500 annually thereafter.

It has been repeatedly proposed that the Public Health Laboratory again become active in the field of milk control. Work done during the past two years over the state has indicated the crying need of a systematic, methodical survey of the milk situation in Kansas. To this end it is suggested that the Public Health Laboratory receive an additional initial appropriation of $3,300 for the necessary equipment, and $2,300 annually thereafter for continuing a mobile unit throughout the year for work on milk and preventable disease.

It is desirable to emphasize again that renewed and strenuous efforts must be made at the next session of the legislature to obtain for the Public Health Laboratory sufficient funds for its proper and efficient maintenance. The laboratory cannot function with insufficient funds.

A recapitulation of its needs follows:

	1933-'34.	*1934-'35.*
Salaries	$6,900.00	$8,400.00
Supplies and materials (miscellaneous expense)	3,100.00	3,500.00
Quarters	800.00	800.00
Refrigeration plant	529.00	.....
Pipetting machine	175.00	.....
Air compressor	105.00	.....
Centrifuge and equipment	407.10	.....
Branch laboratory	3,000.00	2,500.00
Mobile equipment and maintenance	3,300.00	2,300.00
Incubator	.....	350.00
Total	$18,316.10	$17,850.00

The Public Health Laboratory was created July 1, 1920, to meet the increasing demand for laboratory work, the result, in part, of the impetus war activities gave to modern methods in curative and preventive medicine. Pre-

WASSERMANN SPECIMENS RECEIVED IN PUBLIC HEALTH LABORATORY.

Years.	Examinations.
1932	18,545
1931	16,362
1930	14,277
1929	12,150
1928	11,784
1927	11,873
1926	9,561
1925	10,603
1924	10,027
1923	8,107
1922	7,721
1921	5,725

TOTAL EXAMINATIONS MADE IN PUBLIC HEALTH LABORATORY.

Years.	Examinations.
1932	60,289
1931	50,363
1930	40,340
1929	40,109
1928	32,519
1927	22,555
1926	18,873
1925	18,163
1924	20,821
1923	19,341
1922	24,270
1921	17,555

vious to that time the Wassermann laboratory was located in Rosedale (Kansas City), and the other work done was carried on in the home of the late Doctor Sarah Greenfield Stephenson, then state bacteriologist. This organization was brought about by the generosity of the International Health Board of the Rockefeller Foundation. It made the inception of the present organization possible by supplying a preliminary survey by Doctor F. M. Russell, of the United States army, and following that, after the State Board of Health had accepted his recommendations, the International Health Board agreed to furnish the salary of the director and part of that of a bacteriologist for a period of one year. Actually its support continued until 1923. Since that time, however, the laboratory has been entirely supported by state funds appropriated by the legislature, and it has had a turbulent existence attempting to carry forward its work and maintain its function with inadequate funds. Yet, year by year, its work and responsibilities to the citizens of the state have increased. While its growth and undertakings perhaps do not compare favorably with similar institutions in other states, its development has been phenomenal in the light of its handicap by lack of support; while increase in work done the past twelve years is not comparable to the tremendous development of the public health movement during the same period, it has far outdone the encouragement it has received. This growth and development are shown graphically.

EQUIPMENT.

At the time the Public Health Laboratory was organized, it was the proud statement of the Board of Health that it was as well equipped as any laboratory in the country. Since that time, however, little has been done to maintain this standard of equipment other than the purchase of supplies and materials, so that now the greater part of the equipment is obsolete and insufficient. While most of this equipment is serviceable and is meeting the daily demands made upon it, it should be augmented from time to time by modern fixtures of greater capacity and facility.

An attempt has been made, for a period of three years, to secure new equipment adequate to the needs of the laboratory, but complete lack of funds at the end of each period has made such acquisition entirely impossible.

A new refrigerating plant, centrifuge, pipetting machine and microscope should be added to the laboratory immediately. Purchase of a modern incubator, oven, air compressor, and mobile equipment should be anticipated at an early date if the state wishes to maintain the quality of work done in its public health laboratories.

QUARTERS.

In 1920, when the State Board of Health reorganized its laboratory, no funds were available for quarters, and it became necessary, therefore, to secure some suitable place where the laboratories could be united and operated in a fairly satisfactory manner. No space being available in the statehouse, Washburn College was applied to, and President Womer, upon consent of the board of trustees, offered to furnish a room with heat, light and water for the operation of the laboratories, the board of trustees being specifically notified that such an arrangement was only temporary. Yet, at this time, after twelve

years, the laboratory is still carrying forward all its activities in these temporary quarters, consisting of one room, and yet no funds are in view for suitable space.

The inadequacy and insufficiency of this housing cannot be overemphasized. It does not admit of sufficient storage, closet, or cupboard space; is not constructed to permit efficiency, and is generally not conducive to good work.

PERSONNEL.

The personnel of the Public Health Laboratory now includes two full-time technicians, one half-time technician, and a porter-storeroom-cleaning boy, besides a part-time stenographer lent by other divisions of the State Board of Health, and the director. No changes in the laboratory staff have occurred during the past biennium other than the replacing of one of the technicians. Each member of this staff has a collegiate degree, and each is as efficient as the nature of the work and the surroundings permit. This staff includes F. W. Brown, B. S., R. E. Leach, A. B., Helene Ross, M. S., F. C. Bowen, A. B., and J. C. Hofmann, M. A.

It must be recalled the same number of assistants are now employed in the laboratory as were employed in 1922. During that year only 24,270 examinations were made, and during the past year two and one-half times that amount of work was done.

The present laboratory staff appears capable of handling what work may come to the laboratory during the year 1932-'33, except in event of an emergency. However, it should be anticipated during the coming year the work of the laboratory will increase as it has in the past, and it will be necessary to add another full-time technician beginning with the year 1933-'34.

ACTIVITIES AND SERVICES.

During the past biennium the laboratory has been called upon to do field work in three communities over the state where meningitis has been epidemic. Ten days were spent on two different occasions in the state prison at Lansing, ten days at Haven, Reno county, and six days at Herndon, Rawlins county. At the state prison, seven meningococcus carriers were isolated from a single cell house during the first ten-day period. A month later, after these carriers were released one week, another death occurred, so the occupants of the cell house were recultured. Thirteen carriers were then isolated. Since that time these carriers have been under observation while in the prison, and no further cases have developed.

Likewise six carriers were isolated at Haven, and to date no further cases have developed there. No carriers were found at Herndon, but no other outbreak has been reported from that section.

It is regrettable that this is the extent of the field work done by the Public Health Laboratory during the past two years, but lack of funds has curtailed this type of activity except in the most urgent cases.

However, this by no means implies the laboratory has been idle during this period. In addition to the regular routine, a genuine and concerted effort has been made to obtain the necessary two negative stool specimens preceding typhoid fever release from quarantine. During 1928-'29 only 295 specimens were examined, when there were approximately 300 cases. The following

year 388 specimens were submitted from about 300 cases. Examination of this year's report reveals 869 specimens in 1930-'31, and 1,051 specimens during 1931-'32, when there was no increase in the typhoid rate.

Other activities have been in the direction of coöperation with other divisions of the State Board of Health. In the preparation of 1 per cent solution of silver nitrate in wax ampoules for the prevention of ophthalmia neonatorum, the laboratory has made a saving of approximately $100 to the Division of Communicable Diseases. Likewise in the local preparation of typhoid vaccine it has made the same division a saving of approximately $1,500.

In this connection it is regrettable the Public Health Laboratory has been entirely unable to coöperate with the Division of Food and Drugs and the State Board of Agriculture in the work done by these agencies in milk control over the state. But complete lack of funds has made such coöperation entirely impossible. This laboratory has not been associated with a milk survey for nine years.

The routine of the Public Health Laboratory consists of the following examinations:

1. Nose and throat cultures: Material from the nose and throat is collected on sterile swabs sent out by the laboratory. Upon arrival at the laboratory, this material is cultured for the diphtheria bacillus and other organisms, virulence tests following when necessary.

2. Throat smears: Direct smears are examined for *Spirocheta vincinti* and other organisms. A large number of these smears are sent in by dentists.

3. Wassermann and Kahn test, blood serum and spinal fluid: During the past biennium the technique used in these two tests has not been altered. The qualitative Kolmer technique is followed as closely as the laboratory equipment permits, and the standard Kahn precipitation test is used to check the Wassermann result.

4. Lange's colloidal gold curve: Examinations are made and the numbers showing the curves are reported in conjunction with the spinal fluid Wassermann and globulin result.

5. Nonne's globulin test: Two examinations are made routinely on each spinal fluid—one hot and one cold.

6. Widal test: Serum agglutination reactions are run, using both *B. typhosus*, para "A" and para "B."

7. *Br. abortus* agglutination for undulant fever: All specimens calling for Widal, tularense agglutination, and Wassermann giving history of miscarriage, are tested for agglutinins against *Br. abortus*, as well as those asking specially for undulant fever agglutination.

8. Tularemia agglutination test: Blood serum agglutination reactions for tularemia are set up as is indicated.

9. Weil-Felix reactions: Blood serum agglutination reactions set up as desirability is indicated.

10. Blood cultures: Both whole blood and blood clots are cultured. The former only when called for, and the latter as advisability is presented.

11. Stool cultures for typhoid diagnosis and release: Brilliant green bile is used in collecting the specimens for mailing.

12. Urine cultures for typhoid: These specimens are sent in in the brilliant green bile when in the physician's judgment it is desirable to culture them.

13. Bacteriological examinations of spinal fluid and other body fluids: Where possible the organisms present are identified microscopically and culturally, as well as by animal inoculation.

14. Detection of carriers: Typhoid, paratyphoid and dysentery carriers are shown through the stool and urine specimens. Nose and throat secretions are examined for the diphtheria bacillus and meningococcus.

15. Examinations for gonococci: This examination is made on urethral and cervical smears sent in on slides supplied by the laboratory.

16. Examination of sputum: Sputum specimens are examined for tubercle bacilli when sent in the laboratory's containers; other examinations as called for.

17. Intestinal parasites: Examination consists of seeking evidences of helminthes as well as protozoa in feces specimens.

18. Blood smears for malaria: Both thick and thin smears are prepared and sent to the laboratory for diagnosis.

19. Smears for *Tr. pallidum.* When properly prepared such smears are stained and examined.

20. Smears for Ducrey's bacillus: Examination consists in identifying the organism on smears prepared from the lesion.

Other examinations: Occasionally when spinal fluids are presented, immediately upon being taken, cell counts are made, and when a patient is indigent, blood counts and urinalysis are done. Rarely in such circumstances autogenous vaccines are prepared.

Examination of the statistical report reveals the general increase in the number of specimens examined during the past biennium.

TABLE No. 22.—Statistical report of the Public Health Laboratory.

SEROLOGICAL EXAMINATIONS.

	1930-'31.	*1931-'32.*
Complement fixation test for syphilis (Kolmer technique):		
Blood serum—		
Complete fixation	3,062	2,950
Partial fixation	541	681
No fixation	11,970	13,992
Unsatisfactory	789	922
Totals	16,362	18,545
Spinal fluid—		
Complete fixation	130	150
Partial fixation	29	22
No fixation	230	294
Unsatisfactory	46	45
Totals	435	511
Standard Kahn precipitation test for syphilis:		
Blood serum—		
Complete precipitation	2,300	2,232
Partial precipitation	975	1,427
No precipitation	11,998	13,669
Unsatisfactory	1,089	1,217
Totals	16,362	18,545
Spinal fluid—		
Complete precipitation	79	81
Partial precipitation	24	46
No precipitation	229	262
Unsatisfactory	103	122
Totals	435	511

	1930-'31.	*1931-'32.*
Agglutination tests:		
B. typhosus (Widal)—		
Positive	171	202
Negative	341	329
Doubtful	72	93
Totals	584	624
B. paratyphosus "A"—		
Positive	32	7
Negative	524	611
Doubtful	5	6
Totals	561	624
B. paratyphosus "B"—		
Positive	50	22
Negative	502	594
Doubtful	7	8
Totals	559	624
Br. abortus (undulant fever)—		
Positive	157	99
Negative	992	1,444
Doubtful	569	331
Totals	1,718	1,874
Bact. tularense (Francis' disease)—		
Positive	13	14
Negative	40	71
Doubtful	26	4
Totals	79	89
Other	6	0
Unsatisfactory	94	145

BACTERIOLOGICAL EXAMINATIONS.

Venereal:		
Smears for gonococci—		
Positive	338	407
Negative	2,612	2,416
Doubtful	154	415
Unsatisfactory	105	75
Totals	3,209	3,313
T. pallidum—		
Positive	2	2
Negative	7	0
Unsatisfactory	0	0
Totals	9	2
H. ducreyii—		
Positive	1	1
Negative	4	0
Totals	5	1
Eye, ear, nose or throat:		
C. diphtheriæ (cultures for)—		
Positive	475	894
Negative	3,122	8,545
Unsatisfactory	238	279
Totals	3,835	9,718
N. intracellularis (cultures for)—		
Positive	19	0
Negative	1,367	187
Unsatisfactory	0	0
Totals	1,386	187
Smears for *Sp. vincenti*—		
Positive	44	55
Negative	36	49
Unsatisfactory	4	2
Totals	84	106
Streptococci, staphylococci and other organisms	18	35

	1930-'31.	*1931-'32.*
Sputum:		
My. tuberculosis—		
Positive	136	157
Negative	835	839
Unsatisfactory	159	113
Totals	1,130	1,109
Pneumococci	4	5
Other microörganisms	9	3
Stools:		
B. typhosus—		
Positive	43	58
Negative	770	789
Unsatisfactory	56	55
Totals	869	902
B. paratyphosus—		
Positive	1	10
Negative	810	1,001
Unsatisfactory	58	40
Totals	869	1,051
Other microörganisms	17	11
Spinal and other body fluids:		
Spinal fluid for meningococci	11	11
Spinal fluid for other bacteriological examination	38	2
Pleural fluid for tubercle bacilli	20	1
Pleural fluid for other bacteriological examination	16	3
Urine for tubercle bacilli	33	11
Urine for *B. typhosus*	129	27
Pus for bacteriological examination	13	11
Blood cultures	68	11
Body fluids for other bacteriological examination	11	20
Totals	339	97
Animal inoculations	32	12
Other bacteriological or microscopical examinations	93	32
MISCELLANEOUS EXAMINATIONS.		
Lange's colloidal gold test	408	534
Nonne's globulin test	777	1,007
Other chemical examinations	3	8
Unsatisfactory	72	64
Totals	1,260	1,613
Grand total laboratory examinations	50,363	60,289
Typhoid vaccine released during biennium	23,690	7,200
Silver nitrate ampoules manufactured and released	0	1,010
SUPPLEMENTARY REPORT OF INCIDENTAL WORK.		
Containers:		
1. Received	9,762	14,162
2. Sent	11,949	23,376
Totals	21,711	37,538
Letters:		
1. Received	15,964	8,547
2. Sent	13,887	10,752
Totals	29,851	19,299
Telegrams:		
1. Received	726	78
2. Sent	70	820
Totals	796	898

Respectfully submitted,

JAMES C. HOFMANN, M. A., *Bacteriologist.*

Epidemiology of the 1930 Poliomyelitis Epidemic in Kansas.

Earle G. Brown, M. D., Topeka, Kan.

Acute anterior poliomyelitis, erroneously called infantile paralysis, is an acute infectious disease, oftentimes difficult to differentiate in its early stages from any other of the acute infectious diseases of childhood. Apparently the disease is increasing in prevalence in all parts of the civilized world. The name infantile paralysis is not only not descriptive but is misleading, for the reason that adults contract the disease, and also because paralysis is not at all constant. Few diseases are known which in so short a time may completely destroy a useful life through permanent and hopeless crippling.

Case and death records of poliomyelitis are available for Kansas since the year 1908. In that year 100 cases were reported with 33 deaths, while in 1916, the year of the widespread epidemic in the United States, 120 cases were reported with 26 deaths. The high total number of cases, 694, was reported in 1930, as well as the high total number of deaths, 64. The previous high total number of cases, 196, was reported in each of the years 1910 and 1927, in which years 53 and 49 deaths, respectively, were recorded. The lowest case fatality rate, 9.1 per cent was recorded in 1930, and the previous low, 21.6 in 1916. Case reports, number of deaths, and case fatality rates are shown in Table A.

TABLE A.—Poliomyelitis in Kansas.

Year.	*Cases reported.*	*Deaths reported.*	*Case fatality rate.*
1908	100	33	30.0
1909	90	27	30.0
1910	196	53	27.0
1911	26	8	30.7
1912	70	23	32.8
1913	16	6	37.5
1914	26	13	50.0
1915	29	17	58.6
1916	120	26	21.6
1917	75	17	22.6
1918	30	12	40.0
1919	60	17	28.3
1920	26	8	30.7
1921	91	33	36.2
1922	23	20	86.9
1923	149	36	24.1
1924	28	12	42.8
1925	122	36	29.5
1926	66	20	30.3
1927	196	49	25.0
1928	40	9	22.5
1929	26	10	38.4
1930	694	64	9.1

TABLE B.—Poliomyelitis-case reports by months, 1921-'30.

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1921	2	4	0	1	2	1	3	16	36	20	1	2	91
1922	5	2	0	0	1	1	1	6	4	1	1	1	23
1923	0	2	2	0	0	1	10	74	29	20	9	2	149
1924	3	2	1	3	2	0	1	4	8	2	0	2	28
1925	0	0	2	0	1	2	15	38	35	19	6	4	122
1926	2	1	2	0	1	3	3	13	22	13	3	3	66
1927	2	0	5	2	3	5	17	34	68	45	11	4	196
1928	3	1	4	1	1	0	3	14	9	3	1	0	40
1929	2	0	0	1	0	2	5	4	6	6	0	0	26
1930	2	2	1	0	1	2	39	185	272	161	25	4	694

A study of case reports of poliomyelitis by months in Kansas for the past ten years shows only occasional cases for the first six months of the year, with a definite increase beginning in early summer. The peak was reached in September in five of the years; in August in four years, and in 1929, six cases were reported in two months—September and October. These data are shown in Table B.

During the five-year period, 1926-'30, 1,022 cases of acute anterior poliomyelitis were reported in the state, 603 males and 419 females, males predominating in the reported cases in a ratio of six to four. Seventy-six and eight-tenths per cent of the total reported cases occurred in the age group under fifteen years. Among males, 73.5 per cent of cases were under fiftteen, as compared with 81.7 per cent of females reported in the same age group. Of the males 29.2 per cent occurred in the age group 0-4, and 29.4 per cent in the age group 5-9 years. While 23.2 per cent of the reported cases were over fifteen years of age, 38.9 per cent of the deaths were reported in persons over fifteen. Among males, the larger percentage of deaths, 22.3 per cent, for any age group occurred in those 5-9 years, while in females the largest percentage, 26.5 per cent, occurred in those under 5. Percentage distribution of reported cases and deaths by sex and age groups are shown in Table C.

TABLE C.—Percentage distribution of poliomyelitis cases and deaths, by sex and age groups, 1926-'30.

CASES.

Ages	*0-4*	*5-9*	*10-14*	*15-19*	*20-29*	*30-39*	*40-49*	*Ov. 50*
Total	31.5	28.5	16.8	12.2	7.0	1.5	1.5	0.6
Male	29.2	29.4	14.9	14.2	7.9	1.8	1.6	0.6
Female	34.9	27.2	19.6	9.3	5.7	1.1	1.4	0.5

DEATHS.

Ages	*0-4*	*5-9*	*10-14*	*15-19*	*20-29*	*30-39*	*40-49*	*Ov. 50*
Total	21.7	19.7	19.7	13.1	12.5	5.2	4.6	3.2
Male	19.4	22.3	19.4	15.5	12.6	3.8	4.8	1.9
Female	26.5	14.2	20.4	8.1	12.2	8.1	4.0	6.1

THE KANSAS EPIDEMIC OF 1930.

There were 694 reported cases of poliomyelitis in Kansas in 1930, with 64 deaths. During the first six months but eight cases were reported, with date of onset and location by counties as follows:

1. Johnson	Jan. 11	5. Crawford	Mar. 2
2. Wyandotte	Jan. 22	6. Atchison	May 2
3. Montgomery	Feb. 11	7. Shawnee	June 12
4. Douglas	Feb. 18	8. Greenwood	June 28

During the first six months of the year single cases were reported from each of eight counties. In the three-weeks period following June, 30 cases were reported from twelve additional counties and from three counties which had reported cases during the first six months. In general the trend of the location was from the southwest to the junction of highways U. S. 54 and U. S. 81. A tendency to scatter rather widely east and north followed until by the end of September, when 272 additional cases had been reported, the great majority of the counties were represented by one or more reported cases. October had 161 cases, then came a rapid drop to twenty-five cases in November, and to four in December.

Counties from which no cases were reported included: Doniphan, Edwards, Elk, Ellis, Greeley, Hamilton, Haskell, Kearny, Lane, Meade, Morris, Phillips, Scott, Stafford, Stevens and Trego. Only three of these counties, Doniphan, Elk, and Morris, are in the east half of the state.

In an attempt to secure complete case histories, questionnaires were mailed to each physician who reported cases of poliomyelitis after July 1. Five hundred of the 688 blanks were returned, from which the data we now present are abstracted.

TABLE D.—Poliomyelitis—multiple cases in families, Kansas—1930.

Case No.	*Date of onset.*	*Sex.*	*Age.*	*Paralysis.*
47	August 14	M	16	Left leg.
48	August 8	M	23	Both legs.
67	September 26	M	18	Abortive.
68	September 26	M	21	Both legs.
120	September 24	F	13	Left arm, both legs.
121	September 30	M	7	Left leg.
124	October 7	F	8	Abortive.
125	October 6	F	10	Right leg.
132	October 14	M	24	Both legs.
133	October 15	M	19	Both legs.
189	September 18	M	8	Left leg.
189*a*	September 20	F	10	Not stated.
228	August 1	M	8	Chest (died).
229	July 27	F	18	Both arms, both legs.
241	Not given	M	3	Right leg.
241*a*	September 8	F	NS	Not stated.
256	September 20	F	2	Right leg.
257	September 26	F	4	Right leg.
263	September 27	M	7	Bulbar (died).
264	September 29	F	9	Both arms, both legs.
270	October 18	F	4	Not stated.
271	October 29	M	21	Chest (died).
349	August 26	F	5	Right arm.
350	August 29	M	8	Right arm.
352	October 22	F	10	Left arm, right leg.
353	November 3	M	11	Left arm.
356	September 16	M	14	Abortive.
357	September 12	F	11	Left leg.
360	August 30	F	13	Both legs.
361	August 30	M	10	Abortive.
373	July 24	F	6	Right leg.
374	August 1	M	10	Abortive.
411	September 20	F	6	Right leg, left leg.
412	Not given	F	8	Not stated.
413	July 25	F	3	Right leg, left leg.
414	July 22	M	8	Not stated (died).
423	September 26	F	11	Left leg.
424	September 26	M	5	Right leg, left leg.
425	September 19	M	14	Right leg, left leg.

There were 452 cases reported in 433 families. In these families were 1,007 adults and 1,194 children, a total of 2,201 individuals. Records were not secured of the total number of persons comprising the families in forty-eight cases.

In only twenty-five cases was report made that there had been a known contact with an acute case. In twelve of these cases report was made of contact with a member of the family having a definite paralytic case, while the source of contact of the other thirteen cases was not given. The source of infection, however, of eleven cases was attributed to exposure in another state, as follows: Missouri, 4; Colorado, 3; Oklahoma, 2; and Nebraska and Wisconsin, 1 each.

Multiple cases were reported in nineteen families, with one family having three cases. These data are shown in Table D.

The majority of cases had the services of a physician quite early, he being called before the fourth day after onset in 316, or 67.2 per cent, of 469 cases. These data are shown in Table E.

TABLE E.—Poliomyelitis—onset to visit of physician.

	Number.	*Per cent.*
Same day	164	34.9
One day	94	20.0
Two days	58	12.3
Three days	41	8.7
Four days	34	7.2
Five days	25	5.3
Six days	16	3.4
Seven days	18	3.8
Eight days	8	1.7
Nine days	1	
Ten days	2	
Eleven days	0	
Twelve days	0	
Thirteen days	2	2.3
Fourteen days	3	
Over fifteen days	3	
Not stated	31	

According to reports of the attending physicians, 206 of 445 patients, or 46.2 per cent, went to bed on the same day as the occurrence of the onset of the disease. Only five of the patients were not confined to their bed at some stage of their illness. Date showing period of time elapsing from the time of onset until the patient went to bed is shown in Table F.

TABLE F.—Poliomyelitis—from onset to going to bed.

	Number.	*Per cent.*
Same day	206	46.2
One day	80	17.9
Two days	55	12.3
Three days	29	6.5
Four days	25	5.6
Five days	19	4.2
Six days	9	2.0
Seven days	7	1.5
Eight days or over	10	3.8
Not in bed	5	1.1
Not stated	55	...

For any one twenty-four-hour period, the majority of cases developed their paralysis on the fourth day after onset. Report was made that forty-one cases, or 9.2 per cent, did not have paralysis, and therefore are classed as being of the abortive type. Occurrence of paralysis after onset is shown in Table G.

TABLE G.—Poliomyelitis—onset to time of paralysis.

	Number.	*Per cent.*
Same day	65	14.7
One day	15	3.3
Two days	79	17.8
Three days	105	23.7
Four days	63	14.2
Five days	28	6.3
Six days	14	3.1
Seven days	17	3.8
Eight days or over	14	3.1
No paralysis	41	9.2
Not stated	59	...

The principal symptoms in order of importance are shown in Table H.

TABLE H.—Poliomyelitis—occurrence of symptoms.

	Number.	*Per cent.*
Temperature	487	98.9
Headache	372	76.2
Malaise	362	74.3
Stiff neck	360	73.9
Nausea and vomiting	323	66.1
Anorexia	322	65.8
Constipation	228	46.9
Sore throat	180	36.8
Sound sensitive	178	36.8
Pain on swallowing	110	22.6
Disturbance of vision	100	20.7
Diarrhea	77	15.8

In only ten cases was report made of the absence of pain during the entire course of the disease. In 154 of the cases, or 24 per cent, the pain was general, while in 111 cases, or 24.5 per cent, pain was present in the neck, back and legs The sites of pain are shown in Table I.

TABLE I.—Poliomyelitis—location of pain.

	Number.	*Per cent.*
Generalized	154	34.0
Neck, back and legs	111	24.5
Neck and back	65	14.3
Legs (1-r. leg, 2-l leg)	35	7.7
Neck, back and arms	33	7.3
Arms (1-r. arm)	16	3.5
Arms and legs	11	2.4
Miscellaneous	17	3.7
Pain absent	10	2.2
Not stated	48	...

The extreme difficulty in recognizing an attack of poliomyelitis without an accompanying paralysis is shown by the total of paralyzed cases in this series. Without doubt many cases of true poliomyelitis occurred with symptoms so mild, so varied and so indefinite that the attending physician did not feel justified in making a positive diagnosis. These cases had only a slight indisposition, and made a rapid and uneventful recovery. Site of paralysis is shown in Table J.

TABLE J.—Poliomyelitis—site of paralysis.

	Number.	*Per cent.*
Legs:		
Both legs	82	16.7
Right leg	66	13.4
Left leg	76	15.5
Arms:		
Both arms	9	1.8
Right arm	31	6.3
Left arm	16	3.2
Both arms, both legs	17	3.4
Left arm, left leg	19	3.8
Right arm, right leg	16	3.2
Right arm, both legs	10	2.0
Left arm, both legs	9	1.8
Right arm, left leg	8	1.6
Both arms, left leg	5	1.0
Left arm, right leg	3	0.6
Respiratory, bulbar	47	9.5
Throat	7	1.4
Both arms, right chest	4	0.8
Left leg, respiratory	4	0.8
Both legs, abdomen	2	0.4
Right arm, right leg, respiratory	2	0.4
Left arm, left leg, abdominal	2	0.4
Left leg, abdominal	2	0.4
Right arm, respiratory	2	0.4
Right foot	1	0.2
Right hand	1	0.2
Miscellaneous	8	1.6
No paralysis	41	...
Not given	10	...

Spinal punctures were reported in thirty-two cases. Number of cells was not given in eight cases, but in the remaining twenty-four the average cell count was 201. The counts ranged from 5 to 1,800. Counts in excess of 100 were reported in ten of the spinal fluids.

Tonsillectomies were reported as having been performed prior to onset in 76 cases and 13 of these cases had fatal poliomyelitis. In the nonfatal cases, a total of 63, 8 were classed as abortive with complete recovery, while 50 developed paralysis, 5 of them reported as completely recovered.

According to the reports of cases, 138 patients received convalescent serum at some stage of the disease. Information as to the use of serum was not given in six cases.

Of the 138 cases receiving convalescent serum, 13, or 9.4 per cent, resulted fatally, as compared with 51 deaths, or 14.3 per cent in the group which did not receive serum treatment. However, of the 125 nonfatal cases treated with convalescent serum, it was administered to but 60, or 48 per cent, within 48 hours after onset. Of the 125 nonfatal cases receiving convalescent serum, regardless of the time of its administration, 20, or 16 per cent, did not develop paralysis, as compared with but 12, or 3.9 per cent, of the 303 nonfatal cases not receiving serum treatment.

One hundred and eleven of the 500 cases were reported as completely recovered.

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DIVISIONS OF CHILD HYGIENE AND COOPERATIVE COUNTY HEALTH WORK.

Report for the Biennium Ending June 30, 1932.

Dear Doctor Brown—Report is herewith submitted for the Divisions of Coöperative County Health Work and Child Hygiene for the biennium ending June 30, 1932. These divisions are under the direction of one departmental head. The personnel consists of a medical director, one state supervisor of nurses, a stenographer, and one clerk.

The economic condition has made the work more strenuous and oftentimes disappointing to those in charge. Two counties discontinued their activities June 30, 1931, leaving ten counties in operation during the fiscal year ending June 30, 1932.

The legislature in 1931 appropriated $7,500 for coöperative county health work and $10,000 for the Division of Child Hygiene, making a total budget of $17,500 for the fiscal year ending June 30, 1932. With the $19,500 emergency drought relief, $6,000 rural sanitation funds received through federal aid, and $1,200 from the International Health Division of the Rockefeller Foundation, assistance was given local county health departments in carrying on their program for 1931-'32. Many full-time county health departments would have been lost had it not been for this outside assistance; however, only three counties discontinued operation for 1932-'33.

The distribution of these funds will be found in Tables 27 and 28, "Data on full-time counties during the fiscal years ending June 30, 1931, and June 30, 1932."

Kansas had twenty-six counties listed in the drought area, but only four accepted assistance from the special drought relief fund, namely, Cherokee, Greenwood, Butler, and Lyon counties.

Many of the counties eligible for this special relief aid were unable to contribute at least a part of the funds in order to carry out a definite county health program. In many instances less than 80 per cent of taxes were collected, and the general fund in the majority of counties had been depleted.

EDUCATIONAL.

It has been the purpose, not only through the central administration, but also through the county health departments, to carry on an intensive public health campaign and to accept every opportunity to make personal contact with individuals and civic groups whenever possible. During the past two years the division has taken part in a number of county teachers' institutes, the purpose being to instruct teachers how to teach health in the schoolroom. We believe the contacts made in this work have been worth while and a great amount of good has been accomplished. The county health departments have carried out regular public health courses in many of their schools and teachers are awakening to the cause of public health in their schoolrooms.

Bulletins, circular letters, and articles dealing with some phase of public health have been distributed in large numbers to interested citizens throughout the state. The Kansas Mother's Manual is one of the outstanding publications of the Division of Child Hygiene, and several thousand copies are placed in the hands of mothers and expectant mothers every year. In quite a number of schools this manual is being used as a textbook for school nurses. Various other means of publicity are used to promote health education, among them being the monthly "Communicator" issued by this division. Owing to lack of funds, however, we are unable to furnish many worth-while publications that must be purchased by the department.

SANITATION.

The division is also charged with the enforcement of laws, especially with reference to sanitation of schools, boarding homes for children, and tourist camps. The inspectors for the Food and Drug Division have rendered valuable aid in sanitation of tourist camps.

We realize the importance of better sanitation for schools and have insisted on the annual sanitary inspection of schools by county health officers. It is noted many of the old box-type schoolhouses have been remodeled by placing the lighting on one side of the building. This is especially true in the counties having full-time county health departments. The law provides for the annual inspections of schools to be made after the fall term of school begins.

In 1930, 8,466 school districts were inspected, with an average score of 75.2 per cent. In 1930 a revision of the inspection blanks was made in order to improve the scoring in water supplies and toilet facilities. The 1931 inspection reports show a decrease in counties making returns. Figure 21 indicates counties failing to report due to economic and other conditions, and the scores by counties making inspections, for the fiscal year ending June 30, 1932.

Institutions and boarding homes for children demand much of the time of

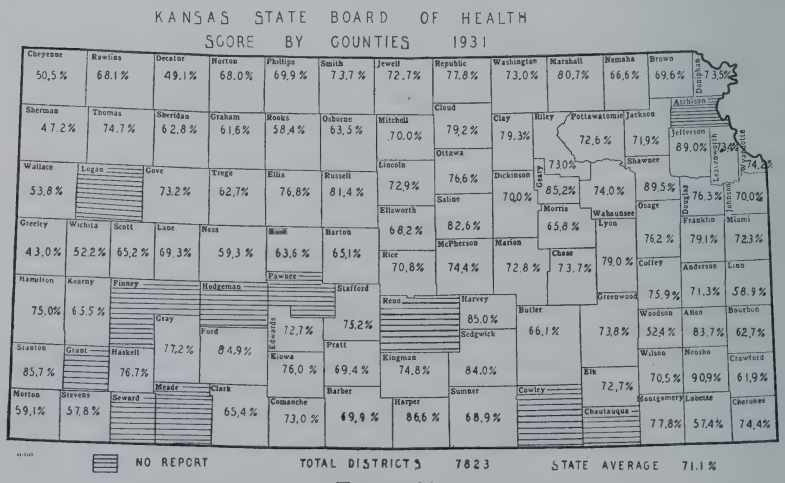

FIGURE 21.

the supervisor of nurses, as under the laws they must be inspected semi-annually by a representative from the child hygiene division.

Inspections were made of homes and institutions as follows:

	1931.	*1932.*
Institutions	35	44
Day nurseries	10	8
Boarding homes	181	111
Maternity homes	23	9
Homes and institutions licensed	98	70
Homes unlicensed	73	63

Rules and regulations governing institutions and homes were adopted in September, 1930. These have served to bring before the various board members and officers the deficiencies and needs of their institutions, which has resulted in many improvements. Matrons have been given a definite standard toward which to work. There are some well-conducted homes and institutions, but others are much in need of a better conception of home management. There are many homes operating without a license. This condition, no doubt, has been influenced by the unemployment situation. It was found necessary to close a few such homes as being unfit to care for these unfortunate children.

ACUTE COMMUNICABLE DISEASE CONTROL.

This division coöperates with the Division of Communicable Diseases, and through full-time health departments lends every assistance possible in the control of epidemics. Full-time county health officers or one of their representatives visit every known or reported case of contagion for the purpose of instructing the householder as to the law and to determine if quarantine regulations are properly enforced. Contacts to active cases are also visited and instructed. Health officers, especially in full-time departments, take an active part in the control of venereal diseases and tuberculosis. The county nurses make frequent visits to cases of tuberculosis for the purpose of giving instructions to contacts and active cases.

While the control of communicable diseases requires many miles of extra travel on the part of the county personnel, it is the only means by which contagion may be controlled, and many health officers are proud of their record "that no school has been closed on account of contagion" during their time in office.

TABLE No. 23.—Deaths from contagious diseases full-time county health departments, 1927-1931.

Deaths From—	Brown	Butler	Cherokee	Dickinson	Geary	Greenwood	Lyon	Marion	Sedgwick	Shawnee
Typhoid fever	3	2	6	1	0	2	3	0	2	0
Smallpox	0	1	2	0	0	0	0	0	1	0
Measles	2	6	9	3	2	4	2	1	1	1
Scarlet fever	2	6	5	2	0	0	7	5	0	5
Whooping cough	7	2	13	8	5	2	7	4	2	5
Diphtheria	4	8	14	0	0	2	4	4	0	8
Tuberculosis	24	47	95	28	14	16	46	27	17	205
Syphilis	1	9	21	4	6	1	8	1	4	15
Diarrhea and enteritis	21	21	35	18	22	8	18	10	12	27
Combined puerperal	12	19	16	9	10	4	29	7	0	7
Intants under one year	93	157	181	118	69	77	130	76	61	84
Totals	169	278	397	191	128	116	254	135	100	357

It is evident by the above table death from contagious diseases have been reduced during the past five years, in counties operating under the full-time plan.

CHILD HYGIENE.

Many infant and preschool conferences have been held during the past two years. These conferences were sponsored by and through this division. Interest in this part of our program is increasing rapidly and many organizations throughout the state are holding conferences conducted by local physicians and nurses. We are unable to personally conduct or assist with many of these conferences due to lack of funds and personnel.

County health departments conduct summer conferences throughout various sections of the counties, and are stressing the importance of immunizations and corrections being made in the preschool child. Prenatal and infant care classes are taught by nurses and the expectant mother is urged to consult her family physician so that he may be able to guide her through this period.

The place and number of conferences held during the past year is shown in Figure 22.

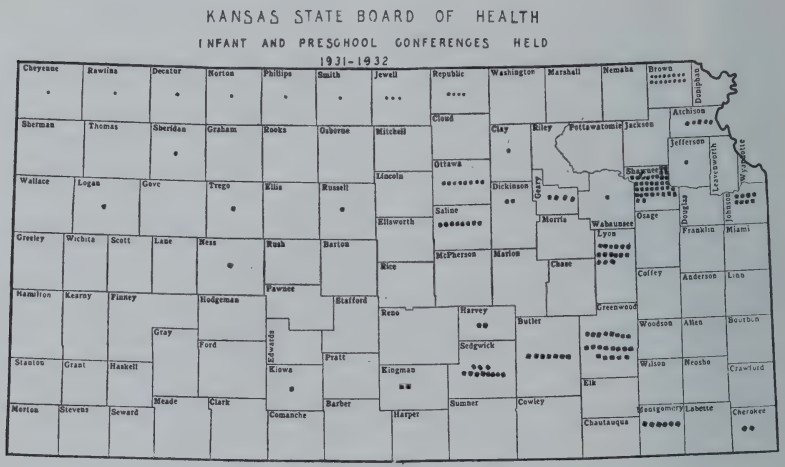

FIGURE 22.

There were 304 conferences held in seventy-one counties during the past two years as follows:

Atchison	10	Montgomery	6
Brown	31	McPherson	4
Butler	9	Ness	2
Cherokee	2	Ottawa	16
Dickinson	21	Republic	4
Greenwood	21	Shawnee	56
Geary	9	Sedgwick	11
Harvey	4	Saline	12
Johnson	8	Sumner	2
Jefferson	1	Miscellaneous	40
Kingman	3		
Lyon	32	Total	304

The tabulation and findings compiled from reports of these conferences are as follows:

Number babies examined (under two years)	2,907
Number preschool children (two to six years)	5,961
Number examined (over six years)	441
Number physicians assisting	414
Number dentists assisting	114
Number nurses assisting	457
Others assisting	1,036
Mothers attending	6,950
Fathers attending	369
Breast fed (exclusive)	4,548
Breast fed (three months)	930
Cow's milk (modified)	2,087
Canned milk	863

PHYSICIANS' FINDINGS.

Under weight (10 per cent)	1,177
Defects, hair and scalp	140
Defects, eyes	199
Defects, ears	277
Defects, nose	221
Defects, mouth	150
Defects, teeth	2,210
Defects, tonsils	3,191
Adenoids	1,442
Glands	1,273
Nutrition	951
Bones	523
Muscles	247
Skin	437
Heart	124
Lungs	119
Genitals	1,310
Mental development	52
Nervous	212
Posture	567
Vaccinated for smallpox	1,705
Vaccinated for typhoid fever	251
Toxin-antitoxin immunization	2,553

PHYSICAL EXAMINATION OF SCHOOL CHILDREN.

A great deal of time is devoted to this phase of the public-health program during the school year. We believe the time and effort spent in this work is bringing results worth while. It has secured a large number of corrections of physical defects and increased the number of "nine-point" school children in the state. The "nine-point" program will be discussed under separate heading. The results of the physical examination of school children are as follows:

TABLE No. 24.—Physical examination of school children in county health departments.

	1930-'31.	*1931-'32.*
Number examined	32,230	32,673
Number males	17,638	16,862
Number females	16,592	15,811
Number found defective	20,100	17,042
Per cent defective	58.7	52.1
Overweight	2,053	1,743
Underweight	6,340	4,868
Corrected weight	1,918	1,594
Defective hearing	424	457
Corrected hearing	63	33
Defective vision	3,752	2,460
Corrected vision	1,011	641
Defective teeth	14,623	7,946
Corrected teeth	6,244	5,238
Tooth brushes in use	17,699	17,745
Tonsils defective	8,923	7,278
Tonsils-adenoids removed	3,016	2,472
Mouth breathers	1,226	1,159
Defects, skin-scalp	666	343
Pediculosis (head lice)	192	69
Other defects	295	258
Auditory defects	207	36
Visual defects	691	62
Nasal defects	121	66
Throat defects	1,579	164
Heart defects	351	223
Pulmonary defects (lungs)	64	28
Mental-nervous	75	57
Orthopedic defects	178	152
Speech defects	149	80
Spinal defects	25	14
Defective nutrition	1,956	1,411
Thyroid enlargement	184	228
Vaccinated for smallpox	12,089	13,696
Vaccinated for typhoid fever	4,857	7,453
Toxin-antitoxin	11,395	14,060
Toxoid	.....	3,116
Improper posture	901	2,196
Total corrections	11,638	9,855
"Nine-point" children	4,717	5,532

THE "NINE-POINT" PROGRAM.

There are approximately 15,000 "nine-point" school children in Kansas as a result of the school health programs.

A "nine-point" boy or girl is one who has attained the standard set by the State Board of Health as being physically fit. In order to meet these requirements a child must be normal in vision, hearing, throat, weight, teeth, posture and have been protected against diphtheria, typhoid fever, and smallpox. Having met these requirements, he is entitled to wear the "nine-point" sunflower button.

The idea of the "nine-point" program was originated in 1926 when it was found 84 per cent of the school children were defective in one or more of the points mentioned. At the time these examinations were made it was found 15 per cent had defective vision; 8 per cent had defective hearing; 41 per cent were found to have diseased tonsils or adenoids; 24 per cent were 10 per cent or more underweight: 52 per cent had decayed teeth; and 75 per cent had improper posture. A large per cent of these children had never been vaccinated against smallpox or immunized against diphtheria or typhoid fever. In order to overcome this high proportion of defects and to secure protection against the three preventable diseases, namely, diphtheria, smallpox and typhoid fever, the "nine-point" program was undertaken. A number of the full-time county health departments adopted the proposed plan as one of their major projects. The result has been far-reaching and very gratifying to both state and local health authorities.

The first demonstration of what may be accomplished by such a plan was held in Cherokee county in 1928, when 1,200 "nine-point" boys and girls were guests of the Columbus Chamber of Commerce in an all-day picnic on May 1 It was a sight to behold; 1,200 boys and girls, physically fit, marched through the business district, keeping step to the music of two bands. As a result of the efforts of the county health department and the coöperation of the parents, many thousand defects have been corrected. Many school authorities pride themselves on having their schools 100 per cent protected against smallpox, diphtheria and typhoid fever. As a result of this spirit of coöperation on the part of the community, only an occasional case of contagion will be found in their schools to-day. The "nine-point" program in Cherokee county alone has netted a 32 per cent reduction in the number of defects found last year; a 50 per cent decrease in grade failures, while absentees due to sickness have been greatly decreased. Can you paint a better picture than the one just described?

The "nine-point" program is spreading rapidly throughout the state. Shawnee, Sedgwick, Greenwood, Brown, Geary, Douglas, and Lyon counties are making rapid gains in the number of children who will be awarded their "nine point" sunflower buttons on May Day. Shawnee county reports 1,250 children will meet the standard this year. There are thousands of other children in the schools who have made the seventh and eighth point, but fail to reach the goal on account of failure to make the ninth—typhoid fever vaccination.

Physical examination of school children is gaining ground rapidly and its importance is being recognized by health and school officials throughout the country. The economic saving in dollars and cents far exceeds the cost of

such a program in any community. It is a settled fact that many of the defects found among school children are acquired after they enter school. It has been determined children in schoolrooms with cross-lighting have the highest proportion of eye defects. This is especially true among the older grade children who attended the same school throughout their school life.

Improper posture may often be attributed to the poor seating arrangement found in the majority of the rural and so many of the city schools. The development of improper posture dates from the time the child first enters school. Adjustable seats in every school building would prevent many round shoulders and curvature of the spine.

STATE COUNCIL FOR HEALTH, EDUCATION, AND WELFARE.

Membership in the State Council is composed of one or more representatives from every official and nonofficial state organization in Kansas. The purpose of the State Council is to make a study of conditions affecting the community life of the citizens of the state and to make certain recommendations to the governor relative to the findings of the various committees appointed by the State Council.

Two meetings have already been held and reports made as to progress during this, the first year of its existence. The findings of the committees have already brought out many interesting facts that will sooner or later result in better legislation covering the subjects studied.

It is the purpose of the State Council to give to every county an opportunity to carry out its own local program, and to interest its citizens in making a similar study as to the outstanding needs in their community.

If we are to succeed in bringing about a closer relationship, a better understanding, between the various organizations attempting some form of welfare work, we must at least have some definite lines to guide us in the work. This will eliminate the overlapping and duplication of the work now being done by many of the worth-while organizations in Kansas.

Tentative plans that will meet the immediate needs of any community have been submitted. Many helpful suggestions are contained therein that may well be considered by county councils in arranging their county program. The responsibility for the success or failure of the local program depends entirely on the interest shown by the members of the local councils.

COUNTY COUNCIL.

The local council is composed of the following officials: A member of the board of county commissioners, county health department, superintendent of public instruction, farm and home demonstration agents, probate judge, and welfare worker (if any), and a representative from the various civic bodies interested in plans and purposes of the council. With this group of interested individuals, a complete study of local needs may be made and the remedy applied to cure the ills.

It is suggested that local councils limit their program to four or five projects depending, however, on the interest shown and the number of committees appointed.

We fully believe in the county council idea, if active committees are selected. This can best be accomplished by selecting individuals interested in their own committee project. The State Council is ready at all times to assist local councils with their problems.

The outline as submitted will be discussed briefly under each separate division.

COUNTY HEALTH DEPARTMENTS.

It is a well-known fact that adequate public health protection may best be administered through full-time personnel, devoting their entire time to preventive measures. Neglect of this important branch of service costs the taxpayer many times over the actual cost of maintaining an efficient health organization. As a result of this knowledge the 1929 session of the legislature enacted a law giving county commissioners authority to make certain levies for support of the local health department. Such a department necessarily has supervision over all matters affecting the health of the community. This includes supervision of milk and water supplies; sanitation of public buildings; the control of contagious diseases; physical examination of school children; supervision of nursing activities in schools, and conducting summer conferences for infant and preschool children.

In counties maintaining full-time health departments, physical defects among school children have been reduced from 84 per cent to 52.1 per cent during the past five years. Grade failures, due to some physical handicap, also show a reduction of 40 per cent during the same period.

At the close of the present school year approximately 15,000 boys and girls met the requirements of the State Board of Health, and are physically fit in hearing, vision, weight, teeth, throat, posture, and have been protected against smallpox, typhoid fever, and diphtheria. This phase of public health work alone will eliminate many of the ills to be found in later life, and at very little cost to the taxpayer.

MEDICAL SERVICE.

This part of the plan stresses the importance of prenatal and postnatal care, the prompt reporting of births and deaths, the protection afforded against smallpox, typhoid fever, and diphtheria through vaccination and immunization.

In a recent study into the cause of deaths incident to childbirth it was found of 192 deaths only 26.6 per cent of expectant mothers placed themselves under the care of their family physician in the early stages of gestation. Hospital care was given to 31.4 per cent. Death may have been prevented in 26 per cent of cases, according to the physicians' reports.

During the year 1931, 118 deaths from diarrhea and enteritis occurred in infants under one year of age. Of this number only 24 per cent had medical care. It is very evident from these reports there is a great need for health education of mothers in the state in an attempt to stop this waste of human life.

EDUCATION AND TRAINING.

This division stresses the importance of parent education, the physical and mental development of children, through boys and girls agencies and our educational institutions.

AGRICULTURAL EXTENSION.

In this section of county council activities emphasis should be given to the importance of 4-H organizations, vocational training for children, sanitation of farm homes, and necessity for home amusements, where parents and children may take recreation together. Through these means, rural life may be made brighter and happier.

FINANCE AND TAXATION.

This part of the county council plans needs careful study and attention. Funds for the protection of public health should be fair and adequate for the needs of the county.

The county poor fund has been exhausted in many counties, due to economic conditions the past year. Ways and means should be provided for the elimination of this enormous expense by providing work for those physically able to earn a living for themselves and their families. This is a social problem, best handled through a trained social worker; and proper hospital facilities for the care of the sick and afflicted at a reasonable cost to the patient.

A copy of the outline for local county councils may be secured by addressing this division.

MAY-DAY PROGRAM.

The director of coöperative county health work and Division of Child Hygiene is state May Day chairman. Every effort was put forth to interest local communities in National Child Health Day. County health departments carried out the plans with a full day's program and many other counties had some form of an appropriate program for the occasion. A copy of the governor's proclamation and narrative of "May Day" follow:

A Proclamation by the Governor.

State of Kansas, Executive Department.

To the People of Kansas, Greetings:

With the increasing importance of world problems there has come a realization that civilization must give thought to the preparation of future generations upon whose shoulders will fall the responsibility of their solution. In this line of thought naturally comes the question of child health and protection. Health is a normal condition, but it must be preserved if the child is to grow into a normal, healthy man or woman, who is able to render the best service possible to his state and nation when he reaches that point in life where the duties of citizenship are his. This is a matter of such importance that the President of the United States early in 1931 proclaimed, in conformity with a joint resolution by the congress of the United States, that each recurring May Day shall be designated as Child Health Day. Kansas, ever ready to assume its responsibility as a commonwealth of this nation in seriously guarding its youth to face the responsibilities of the nation's future, this year repledges itself to that duty.

I, therefore, urge that the citizens of our state, in such manner as best befits the occasion, observe Child Health Day on May 1. In observing this important event I would appreciate observance of the program as outlined by the findings of the White House Conference on Child Health and Protection, which was held at Washington, D. C., last year. The expert medical authorities attending this conference have outlined a careful educational system to protect and safeguard the health of America's children.

I believe that every day in the year should be observed as a Child Health and Protection Day and I am asking that the citizens of Kansas never relax their efforts along these lines. I believe that we can bring to Kansas youth a clean, healthy and sound physical background which will be of inestimable value to this and future generations.

I feel now, as I felt a year ago, that we may do no better than to adopt for our slogan that which was proposed then, "A Child Health and Protection Day every day in the year."

Done at the Capitol, in the city of Topeka, under the great seal of the state, this 19th day of March, 1932.

(Seal.) Harry H. Woodring, *Governor.*

E. A. Cornell, *Secretary of State.*

Curtis W. Myers, *Assistant Secretary of State.*

May-day Program, 1932.

The 1932 May-day program was carried out quite extensively throughout the state. Reports would indicate some form of a health program was given in the schools in most every community, while others gave the entire day to pageants, parades, May poles, and other forms of entertainment.

A number of county councils for health, education, and welfare took active parts in their local counties. The Butler county council gave quite an extensive program with May poles, band concerts, songs, dances and free picture shows. Seven of the eleven city schools in the county took part with the May queen and her attendants.

Cherokee county health department divided its program into three groups, Galena, Baxter Springs, and Columbus.

May-pole and play-day festival was held at Erie under the supervision of the county superintendent of public instruction. The three main business streets were cleared of traffic and each elementary teaching unit took part in the program. Prizes were given for first, second and third place in each of the following: 1, parade execution and formation; 2, bower; 3, May pole; 4, doll buggy; 5, tricycle; 6, small wagon; 7, novelty or stunts; 8, best impersonation. From newspaper reports hundreds of children enjoyed the day.

At Eureka children held the right of way, swarming into town from over the county. A parade of "nine-point" children was held at noon with basket dinner at the city park. The afternoon program was devoted to health talks. May poles, music and the presentation of 330 sunflower buttons to children who met the "nine-point" standard.

Brown, Geary, Shawnee, and Dickinson counties had local programs in every school. Shawnee county provided speakers who gave health talks in all rural schools, there being twenty-six speakers who took part in such programs.

At Larned the schools started "Broadcasting for Health" on Monday morning and continued until schools were out on May 18. Health plays, readings, talks by pupils were given so that all children had a chance to "listen in."

Labette county had its scholarship contest with 700 pupils and 100 teachers taking part. The program was sponsored by the Oswego Chamber of Commerce and was attended by a crowd of 1,500.

At Anthony were May-pole wind, minuets, and health plays in the grades and in the high school. The Girls' Athletic Association took an active part in Play Day, April 30.

At Lawrence window decorations on Child Health, a radio broadcast on health and at which time the children's charter was read.

Coffeyville held preschool conferences, published articles pertaining to child hygiene written by local people, gave radio dialogues by high-school students, had window displays and parties, and ministers of all churches read the children's charter.

Lyon county invited leading citizens from all sections of the county to a meeting held in the courthouse. Speakers were arranged for and various phases of child health were discussed. Many accepted the opportunity to attend this meeting and future plans were made for the coming year. School programs were held throughout the rural districts.

In our publicity campaign many letters were sent to interested citizens

throughout the state. Some two months prior to May Day, weekly circular letters were mailed to members of clubs, county health officers, superintendents of public instruction, public health nurses, urging communities into action. Approximately 18,000 of these circulars were mailed during the time. Good results were apparent.

In the past six months forty-two counties were visited in the interest of county council organizations. Some twenty-one were organized but too late to show results by May Day. However, these councils will be active during the coming year and be ready to take invoice by May Day next.

Day after day and mile after mile the health officers and public health nurses have labored to make ready for May Day 15,000 children. What a task this has been; but those taking part in this program were fully repaid for their efforts when they stood on the side lines and watched these 15,000 children march down the street in their own home town.

There are other counties not heard from, but we know many children were given a day long to be remembered.

SUMMARY OF PUBLIC HEALTH NURSES IN THE FIELD OUTSIDE OF COUNTY HEALTH DEPARTMENTS.

Visits to 63 public health nurses were made by the director and the state supervisor of nurses at different intervals. Nurses working under the supervision of school boards numbered 32; county boards, 6; Red Cross and county, 14; Metropolitan and city, 4; and city for bedside nursing, 6.

The director requested each nurse send a monthly report to the State Board of Health; it was noted most of the school nurses were not accustomed to making a monthly report, but a six weeks' report in compliance with the rules of the school system. Many nurses kept no record at all. However, at the end of the year we had monthly reports in the State Board of Health office, on our forms, from 66⅔ per cent of the public health nurses outside of unit nurses in the state.

In many instances it was noted that public health nursing is a complicated picture as to its placement on the school program. For example, one school nurse in a school system of 1,500 children was directly under the physical education department, her specific duty being the inspection of the first-grade pupils and home visits, while the inspection of older pupils was left to the physical education department, of which she had no knowledge as to its function.

In another locality where the nurse had 5,000 pupils she was given an added duty—probation work. She was unable to get over a preventive program through inoculation or corrections, due to the adverse opinions of the three part-time health officers in her locality.

Several nurses complained that due to the fact that they had to spend so much time in the office in the practice of "first aid" and writing excuses, along with having to report at each school building daily, time was not left for a complete physical inspection of children or special health teaching.

One school nurse in a school system of 3,000 was unable to put in any type of daily health chores, due to the system of departmental teaching in her school.

Most of the nurses (where there is no social worker) have been heavily loaded this year with social problems.

Two school nurses were working under a special program sponsored by the "Commonwealth fund." Most emphasis being put on health teaching through the efforts of the teacher, by her increased knowledge of health and her ability to correlate it with the other curriculum.

Red Cross Nurses. Fourteen Red Cross nurses were visited; most of these nurses were partly supported by some other agency, namely, county, city, school boards, or Metropolitan funds. Five Red Cross nurses are employed as county nurses; four were engaged in bedside nursing on "family visit basis"; two as city school nurses; one as a unit nurse; one in the itinerant nursing service; and one as a parochial school nurse.

City Nurses. There are ten cities employing nurses and all but one doing some Metropolitan home visitation, and doing bedside work on a "family visit basis."

County Nurses. There are six county nurses directly under the county board.

In one locality where two are employed they do the bedside work as well as the school nursing in the county. One of these nurses had converted most of her program into social welfare. The other had taken the responsibility of doing all the inoculations, through permission of the part-time county health officer, which created much criticism due to the unknown reason for death of a child, several months after the child had received toxin-antitoxin.

One public health nurse working in an out-patient department from a hospital under Commonwealth supervision, and another under the federal government located at Mayetta Indian reservation.

The type of nursing service by counties is shown in Figure 23.

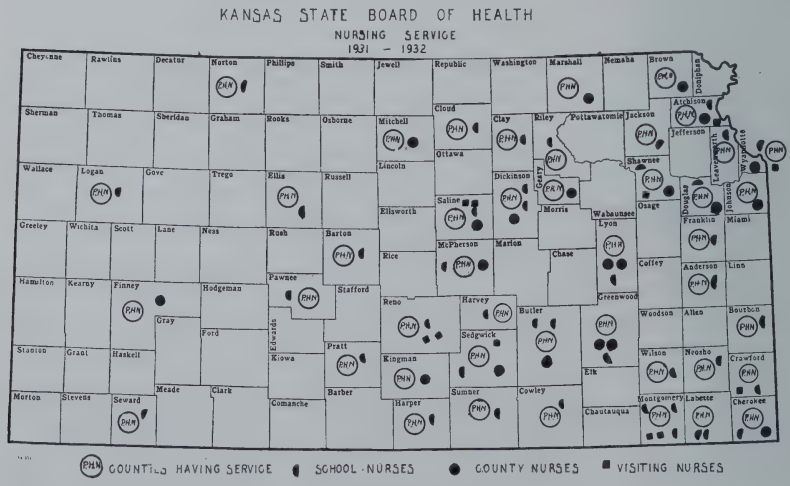

Figure 23.

The following tabulation shows the activities reported by the nurses in the field. This does not include the activities of county health department nurses.

	Total to date.
Child hygiene:	
Prenatal cases advised	742
Office consultations	228
Home visits	2,278
Infant and preschool:	
Babies and children examined	1,737
Home visits	3,587
Office consultations (Mothers)	433
Group Conferences (Mothers)	183
Number clinics held	148
Attendance:	
Mothers	.....
Babies	.....
Corrections	.....
School:	
Children inspected	41,039
Found defective	24,076
Defects found	38,925
Corrections	8,335
Consultations:	
Parents	3,449
Office	1,190
School	2,566
Home visits	7,000
Schools visited:	
City	2,127
Rural	1,560
Talks	1,131
Communicable cases excluded	1,201
Classes taught	398
Other activities:	
Bedside nursing	14,209
Home instruction	2,978
Obstetrical cases	568
T. B. cases visited	1,373
Communicable disease cases visited	2,437
Interviews:	
Physicians	2,345
County commissioners	254
School authorities	2,054
Lay people	4,426
Immunization:	
Smallpox	2,036
Typhoid	582
Diphtheria	6,194
Literature distributed	28,484
Miles traveled	102,792

COUNTY HEALTH DEPARTMENT NURSES.

There are nineteen public health nurses directly under the supervision of the health officers in full-time units. They are well trained, reliable, and have carried on their work with zeal and energy. In order that due credit be given them for the part they have taken in our public health program, a tabulation of their activities for the past two years follows:

	1930-'31.	*1931-'32.*
Child hygiene.		
Prenatal cases advised	518	509
Office consultations	227	254
Home visits	527	592
Infant-preschool:		
Babies and children examined	3,073	1,837
Home visits	1,881	2,294
Office consultations (mothers)	1,028	1,351
Group conferences (mothers)	158	107
Number of clinics held	144	180
Mothers attending	1,950	2,093
Babies attending	2,268	2,546
Corrections noted	215	129
Schools:		
Children inspected	31,178	33,229
Found defective	19,205	17,121

	1930-'31.	*1931-'32.*
Defects found	34,506	28,190
Corrections noted	10,548	9,915
Consultations—parents, office, schools	5,874	8,290
Home visits	4,925	8,493
Schools visited, city	2,975	3,559
Schools visited, rural	2,575	2,372
Talks	2,484	3,083
Communicable diseases excluded	784	1,421
Other activities:		
Bedside nursing	2,257	2,957
Home instruction	1,656	2,038
Obstetrical cases	165	353
Tuberculosis cases visited	431	622
Communicable diseases visited	1,463	1,878
Interviews, physicians	999	1,510
Interviews, county commissioners	245	198
Interviews, school authorities	3,090	3,824
Interviews, lay people	5,107	5,615
Immunizations, smallpox	10,289	4,809
Immunizations, typhoid fever	3,147	3,065
Immunizations, diphtheria	6,817	6,680
Literature distributed	29,195	39,640
Miles traveled	134,250	143,482

LIVE AND STILL BIRTHS.

A tabulation of live and still births in the ten county health departments for the years 1927 to 1931, inclusive, is given herewith.

County.	1927.		1928.		1929.		1930.		1931.	
	L. B.	S. B.	L. B.	S. B.	L. B.	S. B.	L. B.	S. B.	L. B.	S. B.
Brown	418	7	399	6	311	12	172	5	126	3
Butler	719	26	662	20	566	24	273	9	241	5
Cherokee	720	32	650	27	560	29	318	12	315	6
Dickinson	492	10	454	13	456	11	231	6	209	4
Geary	273	2	268	10	276	10	120	4	124	5
Greenwood	461	13	408	19	348	9	237	10	225	5
Lyon	592	28	593	16	594	16	231	3	185	3
Marion	424	11	416	8	355	10	410	9	396	7
Sedgwick	344	4	296	11	303	11	325	2	273	7
Shawnee	285	6	230	9	218	7	238	6	250	7
Totals	4,728	139	4,376	139	3,987	139	2,555	66	2,344	52

MATERNAL DEATHS, 1931.

For the purpose of securing certain data relative to prenatal care of expectant mothers, queries were sent to physicians reporting a death from maternal causes.

Of the 192 deaths reported, replies were received from 116 physicians. The following tabulation will show that the expectant mothers are not being reached, and a great amount of educational work will have to be done by public health officials and physicians in order to reduce the maternal death rate in the state.

FINDINGS.

NUMBER OF PREGNANCY OF MOTHER.

First	40	Tenth	1
Second	20	Eleventh	0
Third	13	Twelfth	0
Fourth	10	Thirteenth	1
Fifth	8	Fourteenth	1
Sixth	12	No report	76
Seventh	4		
Eighth	4	Total	192
Ninth	2		

CARE DURING PREGNANCY.

Consulted early	45
Consulted late	48
Physicians not consulted	23
Total	116

EXAMINATIONS MADE BY PHYSICIAN.

Measurements	37	Forceps delivery	18
Urine examinations	43	Full term	68
Hospital delivery	53	Live births	56
Home delivery	33	No data	23
Not specified	30	Cæsarian	11
Normal delivery	31	Illegitimate	6

Death may have been prevented by early care was answered in the affirmative by 44 physicians.

DEATHS FROM DIARRHEA AND ENTERITIS, 1931.

Queries were sent to 118 physicians with 70 returns. The data contained in these returns are as follows:

Deaths under—		Breast fed (full time)	22
6 months	40	Cow's milk	26
12 months	23	Canned milk	22
18 months	3	City water supply approved	25
24 months	4	Poor sanitation	29
No reports	48	Improper feeding	35
		Under medical care	25
Total deaths	118	No data	34

TABLE No. 25.—Statistical data, 1924–1931.

YEAR.	Births.		Infant mortality.		Maternal deaths.	
	Number.	Rate.	Number.	Rate.	Number.	Rate.
1931	33,075	17.5	1,586	47.9	192	5.8
1930	33,984	18.1	1,766	52.1	237	6.9
1929	32,854	17.7	1,883	57.3	201	6.1
1928	33,860	18.4	1,996	58.9	246	7.2
1927	35,230	19.2	1,906	54.1	206	5.8
1926	35,671	19.5	2,282	63.8	247	6.9
1925	37,728	20.8	2,283	60.5	214	5.6
1924	38,251	20.9	2,233	58.3	202	5.2

The infant death rate of 47.9 in 1931 is the lowest in the eight-year period. It will be noted that 1924 had the lowest maternal death rate—the birth rate was highest during the same year.

COUNTY HEALTH DEPARTMENTS.

The director has visited the full-time county health departments many times during the year. These visits were for the purpose of encouraging field workers and to assist and advise with them relative to their local problems. The coöperation of the personnel of the various counties has been the very best, and, with this feeling existing between the state and local departments, much more effective work has been done. Quarterly meetings were held at some central point where all gathered to discuss their problems. These conferences have been very helpful to those in the field, and gave the state department a better opportunity to study local problems.

During the early part of the fiscal year every effort was made to interest drought counties in the special aid for "drought relief." Regular funds were withdrawn from Cherokee, Lyon, Butler and Greenwood counties, and "drought aid" substituted. Many other drought counties were visited and every argument used to interest them in accepting the program. We were met in most every instance with this remark, "If you will give us this money to help feed our people we will accept." In many counties the finances are depleted. County commissioners are being urged to cut every county department, and in many instances the demands are unreasonable as well as impossible.

Drastic cuts were made in Geary and Lyon counties before an agreement was reached. Proposed budgets submitted to other counties were likewise reduced, even to the point of crippling the work of the department.

In most every instance the commissioners spoke of the work in the highest terms and no word of criticism was offered by them relative to any member of their health department. The only excuse offered was "retrenchment."

The physicians have been loyal and coöperative in full-time departments and in only one instance has there been any open criticism offered. In this case objection was made to the immunization program, stating that "it was hurting their business."

The old idea that health officers should treat the poor still is uppermost in the individual taxpayer's mind, and despite the efforts of the Health Department to disabuse his mind, he is of the same opinion still. The present economic conditions have increased the demand for free medical care and county commissioners are inclined to pass this situation on to the health officer.

COUNTY HEALTH OFFICERS.

Full-time county health officers are appointed by local county boards with the consent and approval of the State Board of Health. The health officers now in charge of county health departments are men experienced in health work and blessed with good judgment; men with a public-health vision and plenty of energy. They have been very coöperative with the State Department as well as local civic organizations.

It is not the purpose to infer they are perfect or beyond criticism. They have been criticized, but when one finds a health officer without some fault something is always wrong. Taken as a whole, however, no apologies are offered for their conduct.

FULL-TIME COUNTY HEALTH DEPARTMENT.

The following is a brief history of the full-time coöperative county health departments operating in the state at the close of the fiscal year ending June 30, 1932. Location of full-time county health departments is shown in figure 24.

BROWN COUNTY.

This county began operating under the plan August, 1928. It is located in the northeastern part of the state, with a population of 21,163. The principal industry is farming. Contracts have been renewed each year up to the present time. During the past two months conferences were held with the commissioners at various times to discuss renewal of contracts. Owing to the failure of a number of banks, poor crops and the general trend of tax

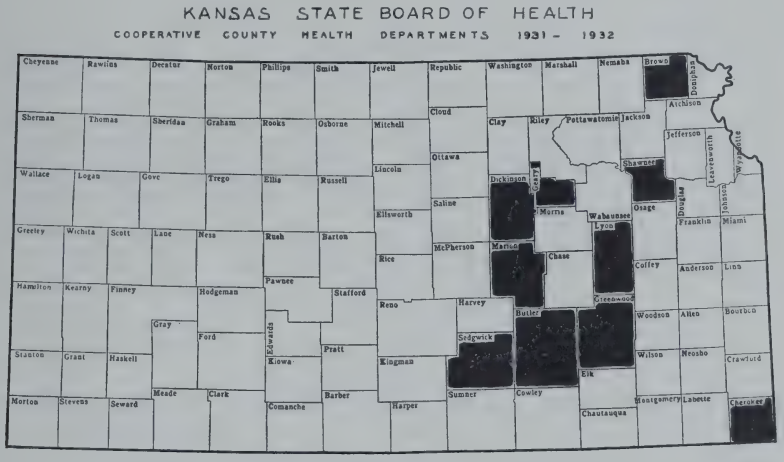

FIGURE 24.

relief, the commissioners suggested that it be put to a vote at the August primaries. This plan does not meet with the approval of the State department, as health work cannot be made a political football. The commissioners were inclined to discontinue the unit June 30 and keep the nurse for the coming year. Later they reconsidered and contracts were renewed, retaining the same personnel for the ensuing year.

BUTLER COUNTY.

The Butler county department has been in continuous operation since 1921. The county is located in the south-central part of the state and has a population of 36,126. The principal industry is stock raising and oil production. The county has been self-supporting until last year, when $5,000 special drought relief was offered and accepted. The program was rearranged and continued throughout the year on the coöperative plan.

On a recent visit the commissioners expressed themselves as being well pleased with help received and regretted that funds would be discontinued. It is understood they will continue the work with reductions in salaries and

personnel. This county, like all Kansas counties, is hard pressed for funds, due to bank failures, drought, diminished oil production and low price of live stock.

CHEROKEE COUNTY.

Cherokee county was organized August 4, 1919, and with the exception of the years 1926 and 1927 have been in continuous operation since. It is located in the southeastern corner of the state and has a population of 30,178. The principal industry in mining, although the central part of the county is considered agricultural. The northern third of the county is devoted to the coal industry, while in the southeastern third are the zinc and lead fields. This is one of the drought counties receiving special aid during the year. There is no county in the state that has suffered as much from economic conditions as Cherokee county. Both coal and zinc mines are closed and thousands of workers are depending on county aid. In a recent survey it was found approximately 6,000 individuals have been fed and given medical attention during the past year; this does not include the large number treated by local physicians.

Visit after visit has been made in an effort to save their health department. An increase of funds was offered, but to no avail. Individual interviews and groups of citizens conferred in the interest of the department. At a meeting held in June it was stated: "The children have all been protected against smallpox, typhoid fever and diphtheria, so we will now take care of the sick."

Every argument was used, but without results. The commissioners voted to discontinue the department June 30, 1932.

GEARY COUNTY.

This county is the oldest department in continuous operation, having been organized in January 1920. Geary county borders Fort Riley on the west and south, an agricultural county with a population of 13,796. There has been more or less opposition at every contract period until the present time.

Junction City, the county seat, has contributed liberally from the first, and was present when the budget was submitted recently. After much discussion and drastic cuts, contracts were signed for the fiscal year ending June 30, 1933.

No word of criticism was offered relative to the present health workers.

GREENWOOD COUNTY.

Greenwood county was organized January 1, 1928, and is another county to receive drought-relief aid during the past year. It has a population of 20,034 and the principal industry is stock raising and oil production. Like all other Kansas counties, the economic conditions have become alarming. Bank failures, oil production curtailed, poor crops, stockmen financially embarrassed, and only 80 per cent of taxes paid into the county treasury, was largely responsible for the discontinuance of the health department. Yet the citizens were optimistic and the health department had many supporters who expressed a desire to see it continue.

A number of visits have been made and many conferences held during the past two months, trying to secure renewal, but without results. No official action was taken by the commissioners and the department automatically discontinued June 30, 1932.

LYON COUNTY.

Lyon county is known to have one of the best orgainzed county health departments in the state. It began to function on the full-time basis in 1923, population of county, 28,303. Farming and stock raising is the principal industry. Emporia, the county seat, has two colleges of learning and the student population is increasing every year, as well as health hazards due to contagion.

Lyon county is another one of the drought counties, where regular funds were withdrawn and drought aid substituted. This special aid now discontinued, it was necessary to make the usual reductions in personnel and salaries.

On our visit for the purpose of renewing contracts, the commissioners were divided three ways on the proposition. After much discussion a budget was agreed upon and contracts signed with city of Emporia and the Red Cross contributing. The activities will be curtailed owing to the reduction in personnel. In all probabilities, however, local funds will be increased after January 1.

MARION COUNTY.

This county was organized in 1920, and has a population of 21,858, farming and stock raising being the principal industry.

The department for years has consisted of a full-time health officer only. In connection with his official duties, he is required to care for the pauper sick, which means his time is largely devoted to the practice of medicine and health work is a secondary matter. During these depressing times, when so many are without funds, the health program was curtailed. However, the health officer has made some effort to examine school children and many have been immunized during the year.

SHAWNEE COUNTY.

Shawnee county was organized in 1928, and has a population of 19,621 outside of the city of Topeka.

The health program is being carried on in a practical manner, with no spurts of enthusiasm, but a daily grind in health activities. A great deal has been accomplished and very little complaint is heard throughout the county.

The city of Topeka having its own health department, the county health officer's duties are confined to small towns and rural communities outside the city limits. Contracts were renewed for the fiscal year ending June 30, 1933.

SEDGWICK COUNTY.

Sedgwick county is located in the south-central part of the state. It is the second largest county in the state, having a combined population, including the city of Wichita, of 130,543 inhabitants. The principal industry is wheat and oil production, with some industrial activities.

The county health department confines its activities to communities outside of the city of Wichita with a population of approximately 25,000.

At the time contracts were renewed the commissioners spoke in the highest terms of the former health officer, now deceased, and requested the best man available be sent to take charge July 1. Dr. C. R. Hepler, formerly with the Cherokee county department, was chosen to fill the vacancy, effective July 1.

The combined activities of full-time counties operating during the fiscal years ending June 30, 1931, and June 30, 1932, are shown in Table 26:

TABLE No. 26.—Progress reports.

	1931.	*1932.*
Educational:		
Lectures	241	308
Attendance	39,481	15,676
Bulletins distributed	18,421	56,507
Newspaper articles	2,577	1,462
Circular letters	26,645	23,940
Health exhibits	95	31
Sanitary inspections:		
Private premises	860	671
Public premises	2,578	2,858
Special inspections:		
Dairies	622	684
Other food producing places	704	805
Examinations:		
For life extension advice	378	1,064
Marriage licenses	.....	.....
For work certificates	472	.....
For lunacy	16	33
Of prisoners	574	661
Food handlers	75	85
Acute communicable-disease control:		
Visits to cases, etc.	6,483	7,873
Cases isolated	2,863	4,170
Venereal-disease control:		
Suspects examined	132	153
Prophylactic treatments	3	.....
Curative treatments	8	35
Tuberculosis control:		
Number examined	419	414
Positive	99	57
Negative	183	248
Placed in institutions	33	24
Home visits	478	444
Persons treated for removal of hookworm	0	0
Persons treated for prevention or cure of goiter	1	0
Schick tests	12	1,663
Cows tuberculin tested	1,575	1,089
Immunization:		
Complete antityphoid	7,630	8,081
Antismallpox vaccination	16,009	8,350
Complete diphtheria	7,157	9,853
Persons given prophylactic diphtheria antitoxin	103	244
Persons given antirabic treatment	37	17
Child hygiene:		
Prenatal:		
Cases given advice	467	525
Examination	20	21
Office consultations	237	266
Group conferences	12	.....
Home visits	465	609
Midwives instructed	2	0
Infant and preschool:		
Babies and children examined	2,859	2,507
Office consultation, mothers	1,893	2,305
Group conferences, mothers	227	190
Home visits	1,825	2,427
Schools:		
Children examined	31,139	36,880
Found defective	17,053	17,401
Defects found	33,268	28,891
Consultation—parents, office, school	6,059	7,488
Home visits	5,986	9,082
Talks to classes, drills in hygiene	2,280	2,657
Exclusions for communicable disease	1,740	1,980
Laboratory examinations:		
Specimens—		
Blood for Widal	80	48
Blood for *B. typhosus*	6	16
Blood for Wassermann	97	117
Blood for malaria	0	0
Smears for *B. diphtheria*	1,154	2,011
Smears for gonococci	131	128
Sputum for *B. tuberculosis*	109	67
Feces for parasites	97	27
Water for *B. coli*	214	310
Milk for high bacterial content	554	1,218

Results:	*1931.*	*1932.*
Sanitary privies installed:		
Type—septic or L. R. S.	13	7
Water-type vaults	32	10
Bucket and box	6	0
Pit, rural and urban	63	22
Privies restored to sanitary type	223	142
Septic tanks installed	27	12
New sewer connections	49	46
New water connections	84	33
Wells or springs improved	35	96
Public milk supply improved	60	64
Food places improved	58	85
Places producing food for sale improved	48	17
Dwellings screened against flies, etc.	5	3
Stables made sanitary	33	92
Nuisances corrected	225	212
Convictions for violation sanitary laws	2	1
Nutritional cases improved	380	52
Corrections of physical defects induced:		
In infants	34	24
Preschool	128	92
In school children	9,434	6,440
Adults	103	610
Miles traveled:		
Health officers	*153,851	†138,353
Nurses	*119,116	†135,570
Statistics:		
Births	7,345	6,718
Deaths	4,403	4,251

* Twelve counties. † Ten counties.

FINANCIAL STATEMENT.

Tables 27 and 28 show the cost of operation and the agencies contributing toward the support of the work in full-time county health departments in 1931 and 1932.

OTHER ACTIVITIES.

The following is a tabulated report of our other activities for the two-year period ending June 30, 1932:

FIELD ACTIVITIES.

Visits to county health departments	108
Trips to prospective counties	67
Conferences with county commissioners	88
Conferences with unit officers	125
Conferences with part-time health officers	93
Conferences with citizens	1,824
Public health addresses	26
Infant and preschool conferences conducted	35
Inspection of homes and institutions	385

OFFICE ACTIVITIES.

Incoming mail (letters)	5,322
Outgoing mail (letters)	5,206
Outgoing packages	825
Office conferences	516
Circulars mailed	10,800
Mother's Manuals	25,815
Children's Bureau pamphlets	17,756
Prenatal correspondence	9,971
Birth certificates	19,354
"Nine-point" literature	25,425
Nurses handbook	250
Supplies for conferences	9,437
Miscellaneous publications	68,130

TABLE No. 27.—Data on full-time counties operating during fiscal year ending June 30, 1931.

Number and County.	Organized.	Population.	Total budget.	Contributing agencies.						Per capita tax.	Assessed valuation.	Mill tax.	Population, cities over 10,000.	Personnel.			
				P. H. S.	I. H. B.	State.	County.	A. R. C.	Others.					H. O.	Insp.	P. H. N.	Clerk.
1. Cherokee	1919	30,006	$8,220.00	$2,400.00	.....	.....	$5,820.00	.....	.....	.19	$36,878,161	.0002	.....	1	....	1	1
2. Geary	1920	14,024	7,417.00	.....	.....	.....	4,917.00	.....	$2,500	.54	21,756,793	.0003	.....	1	....	1	1
3. Marion	1920	21,469	4,000.00	.....	.....	.....	4,000.00	.....	.....	.18	54,180,598	.0001	.....	1	....	....	1
4. Butler	1921	35,288	14,710.00	.....	.....	.....	6,480.00	.....	8,230	.42	92,650,265	.0002	El Dorado	1	2	4	1
5. Ottawa	1922	9,780	7,500.00	1,200.00	.....	.....	6,300.00	.....	.....	.64	29,487,574	.0002	.....	1	....	1	1
6. Lyon	1923	27,935	10,640.00	1,200.00	.....	.....	5,940.00	$2,000	1,500	.34	55,554,587	.0002	Emporia	1	....	2	1
7. Greenwood	1928	18,725	8,300.00	2,400.00	.....	.....	5,900.00	.....	.....	.31	57,756,392	.0001	.....	1	....	1	1
8. Shawnee	1928	19,621	7,809.35	600.00	$468.72	$1,250.00	5,490.63	.....	.....	.27	129,607,425	.00006	Topeka	1	....	1	1
9. Brown	1928	21,185	7,800.00	300.00	1,250.00	1,250.00	5,000.00	.....	.....	.24	50,576,605	.0002	.....	1	....	1	1
10. Dickinson	1929	25,657	10,560.00	500.00	900.00	1,250.00	5,030.00	2,880	.....	.30	57,529,090	.0002	.....	1	....	2	1
11. Sedgwick	1929	22,426	7,800.00	300.00	1,250.00	1,250.00	5,000.00	.....	.....	.23	203,045,625	.00003	Wichita	1	....	1	1
12. Seward	1930	6,586	6,120.00	212.50	989.52	989.52	3,928.46	.....	.....	.59	13,296,101	.0002	.....	1	....	1	1
Totals	.....	252,695	$100,876.35	$9,112.50	$4,858.24	$5,989.52	$63,806.09	$4,880	$12,230	.....	$802,319,216	.....	4	12	2	16	12

TABLE No. 28.—Data on full-time counties operating during the fiscal year ending June 30, 1932.

Number and County.	Organized.	Population (1930).	Total budget.	Contributing agencies.						Local per capita tax.	Assessed valuation (1929).	Mill tax.	Population, cities over 8,000.	Personnel.			
				P. H. S.	I. H. B.	State.	County.	A. R. C.	Others.					H. O.	Insp.	P. H. N.	Steno.
1. Cherokee	1919	30,178	$8,400	$4,500	.....	.....	$3,900	.....	.....	.129	$36,878,161	.0002	.....	1	....	1	1
2. Geary	1920	13,796	5,315	1,200	.....	.....	2,615	.....	$1,500	.189	21,756,793	.0003	.....	1	....	1	1
3. Marion	1920	21,858	4,000	.....	.....	.....	4,000	.....	.....	.182	54,180,598	.0001	.....	1	.....	.....	1
4. Butler	1921	36,126	12,900	5,000	.....	.....	4,720	.....	3,180	.218	92,650,265	.0001	El Dorado	1	2	4	1
5. Lyon	1923	28,303	11,040	5,000	.....	.....	6,040	.....	.....	.213	55,554,587	.0002	Emporia	1	....	2	1
6. Greenwood	1928	20,034	10,360	5,000	.....	.....	5,360	.....	.....	.267	57,756,392	.0001	.....	1	....	1	1
7. Shawnee	1928	19,621	7,800	1,200	.....	$1,250	5,350	.....	.....	.272	129,607,425	.00006	Topeka	1	....	1	1
8. Brown	1928	21,163	7,400	1,200	.....	1,250	4,950	.....	.....	.233	50,576,605	.0001	.....	1	....	1	1
9. Dickinson	1929	25,071	10,200	1,200	$600	1,250	4,330	$2,820	.....	.285	57,529,090	.0002	.....	1	....	2	1
10. Sedgwick	1929	22,426	8,250	1,200	600	1,250	5,180	.....	.....	.23	203,045,625	.00002	Wichita	1	....	1	1
Totals	.....	238,576	$85,645	$25,500	$1,200	$5,000	$46,445	$2,820	$4,680	.....	$759,535,541	.....	4	10	2	14	10

CONCLUSIONS.

A thorough canvass has been made of Kansas counties maintaining full-time health departments during the past year. The tax levies made for all departments of county government failed to meet the needs, due to unpaid taxes. All departments have been overdrawn and the commissioners hesitate to obligate themselves to further expense.

In every county, with no exceptions, mention was made of the importance of health work and all realized the department had been a good investment.

There is no question but that, this being an election year, politics has played an important part in certain counties in defeating the health program. Every argument was offered in trying to save the situation, and admitted by the board, but with negative results.

The 1931 legislature enacted a law requiring boards of county commissioners to submit all budgets for public hearing during the month of July, as levies are made in August; this has been the means of holding up contracts in a number of counties.

There is great need for the continuation of the work in the field, but it will be necessary for additional funds to be provided from some other source if these counties are to continue. The amounts offered Cherokee, Dickinson and Greenwood counties made no impression whatever. If additional aid can be offered it may be possible to save at least two of these departments.

Respectfully submitted,

J. C. Montgomery, M.D., *Director.*

DIVISION OF FOOD AND DRUGS.

Report for the Biennium Ending June 30, 1932.

DEAR DOCTOR BROWN—The submitted and attached reports constitute the biennial report as required by law. Our activities for this two-year period have been most varied and have been composed mostly of special work other than regular inspection work.

The last legislature saw fit to equip our inspectors with autos, and with the aid of these cars we have been able to do a great deal more work, as our report will show.

The attached tables will show 25,164 inspections were made, 1,740 towns were visited, 13,281 samples were collected, and 126 prosecutions were made, at an expense of $7,897.41. Respectfully submitted,

THOS. I. DALTON, Ph. C.,
Assistant Chief Food and Drug Inspector,
Kansas State Board of Health.

COMPARISON OF NUMBER OF INSPECTIONS, 1928 TO 1932, INCLUSIVE.

Years.	Inspections.
1932	13,734
1931	11,430
1930	9,767
1929	9,746
1928	7,978

COMPARISON OF NUMBER OF TOWNS, 1928 TO 1932, INCLUSIVE.

Years.	Towns visited.
1932	1,203
1931	537
1930	522
1929	739
1928	891

COMPARISON OF NUMBER SAMPLES COLLECTED, 1928 TO 1932, INCLUSIVE.

Years.	Samples collected.
1932	4,428
1931	8,853
1930	3,263
1929	678
1928	789

COMPARISON OF NUMBER OF PROSECUTIONS, 1928 TO 1932, INCLUSIVE.

Years.	Prosecutions.
1932.....	126
1931.....	100
1930.....	98
1929.....	189
1928.....	185

Report for the Fiscal Year Ending May 31, 1931.

INTRODUCTION.

This annual report for the fiscal year of 1931 comprises the months from June 1, 1930, to May 31, 1931. The activities during this period have been more or less varied and consist of a great deal of special endeavors outside the regular inspection work. Special activities consisted of egg work, inspection of fairs, dairy inspection work in coöperation with the dairy commissioner's office, and the investigation of special complaints arising in the office and other state offices.

REGULAR INSPECTION WORK.

Our regular work consists in the enforcement of the food-and-drug act and also the weights-and-measures law, of which we are charged with the enforcement. In the inspection of food and drug establishments we inspect as to the sanitary condition of the place of business as well as the sanitary conditions under which foods and drugs are kept for sale and manufacture. In doing this work samples of foods and drugs are collected for analysis to determine whether they are misbranded or adulterated. Scales, as well as weights and measures, are inspected as to their accuracy. When inspections are made and conditions are found not to conform with the laws and regulations of the State Board of Health, written orders are given to adjust or correct these conditions in a specified length of time. When conditions are found to be in such shape as to warrant prosecution or more drastic measures, complaints are filed against the party who has violated the law and prosecutions are made in the proper courts. Samples collected are sent to our laboratories, either to Manhattan or Kansas University at Lawrence, and when such samples are found to be manufactured or sold in violation of our laws, such manufacturer or persons who sell these commodities are notified to right such conditions as to misbranding or mislabeling. If the foods are found to be deleterious or unwholesome they are immediately condemned for use as human food.

A total of 11,430 such inspections have been made during this annual period; 537 towns have been visited; 100 prosecutions made and 8,853 samples collected for analysis. All of this work has been done at a total cost of $4,013.36.

EGG-INSPECTION WORK.

The egg-inspection work covered the entire three months of the first quarter of this annual period and consisted in working egg shipments arriving at the concentration points. The concentrating points worked were in the cities of

Garnett, Topeka, Pleasanton, Lawrence, Fort Scott, Kansas City, Abilene, Clay Center, Osage City, Atchison, Mankato, Blue Rapids, Hanover, Beattie, Marion, Manhattan, Salina and Marysville. In doing this special work it was found that 67 shippers were violating the egg-candling regulations, and complaints were filed against them and prosecutions made in the proper courts.

INSPECTION OF FAIRS.

During September and October numerous requests were received from various fair organizations that we supervise and inspect food and drink stands at the various county fairs and the state fairs in Topeka and Hutchinson. The fair inspections were at Belleville, Iola, Phillipsburg, Norton, Smith Center, Effingham, Barnes, Girard, Dodge City, Ottawa, Newton, Valley Falls, Tonganoxie, Beloit, Russell, Independence, Iola, Burlington, Washington and Rossville. From the comments and requests that we had relative to these inspections we feel that we have rendered a real service to the public by attending these fairs. The State Fair Association at Hutchinson has thought well enough of our work to request, in the form of a resolution, that we continue this inspection this coming September.

COÖPERATION WITH THE FEDERAL GOVERNMENT.

This phase of our work, in conjunction with the federal government, is the collecting of samples of foods and drugs having entered interstate traffic; also, from time to time, at the instigation of the federal authorities, we place an embargo on foods and drugs which may be either deleterious or misbranded. For instance, a few weeks ago an embargo was placed upon 1,200 cases of ice-cream cones shipped to the Raney-Davis Wholesale Grocery at Arkansas City, Kan. These cones contained saccharin, a substitute for sugar, which is a violation of both the federal and state laws. Last fall we worked with the federal inspectors in the inspection of apples which had excessive spray residue of arsenic on them. An embargo was placed on such cars of apples until they were properly washed or otherwise treated so they were safe to be used as human food.

This year we have already made arrangements with the entomologists and federal authorities to work for at least a month or six weeks in the apple territory around Troy. We intend to have a technician and a laboratory at Troy offering this service to the apple growers of that territory. The apple growers have agreed to pay the technician's expenses while doing this work.

OTHER SPECIAL INVESTIGATIONS.

From time to time the office receives complaints from over the state, which are immediately investigated, such as meat peddlers in trucks, the violation of our egg-candling regulations, insanitary conditions of tourist camps and anything that might arise and needs immediate attention from this department. About a month and a half ago both the governor's office and the attorney-general's office received numerous complaints from the western counties that hundreds of cattle were lying scattered over that vast territory, having perished during the severe blizzard in March of this year. Inspector Woolman was im-

mediately sent into those counties, and after an intensive campaign of four weeks, with the coöperation of the county commissioners, county health officers and county sheriffs, we were able to bury and otherwise dispose of these carcasses to the amount of 6,000. One incident of disposal was where 1,500 head were thrown into one of the gulches of the territory and 125 pounds of dynamite was used to cover these carcasses with about twenty feet of earth. The job has been well done.

After we helped and supervised this work, it was called to our attention that, after all, we should not have had to do it, for the county commissioners and board of health, through their county health officer, should have seen that these conditions did not exist. However, after some prodding from Inspector Woolman and the newspaper publicity the work was completed. The counties worked were: Finney, Scott, Wichita, Lane and Thomas.

THE 1931 LEGISLATURE.

The 1931 legislature passed only one law sponsored by this department, namely, the Model vinegar law, which conforms with the federal law, as well as several of the other state vinegar laws. This law allows the sale of reduced cider vinegar in Kansas now, where under the old, antiquated vinegar law such vinegar could not have been sold.

The legislature also saw fit to equip our inspectors with Ford automobiles, making an emergency appropriation for them, so that we received them about the middle of April. With the aid of these cars we have been able to work the entire fiscal year, also have been able to inspect roadside tourist camps and food-and-drink establishments that would otherwise have been impossible.

DAIRY INSPECTION.

For the past two years, as time would permit, we have worked one and two inspectors in coöperation with the inspectors from the dairy department in the inspection of market milk, its production and sale to fifty-seven communities in the state of Kansas. At the present time we are working in the city of Topeka and intend to complete this work within the next two or three weeks. We believe we have benefited the consuming public by cleaning up those milk supplies which were not producing clean, wholesome milk, and have also helped the producer in telling him and showing him which cows were diseased and giving him information that will help him in the production of safe milk. It is our desire that we continue in this work with the dairy commissioner's office, because if there is any one thing that needs the strictest supervision it is the production of milk.

CONCLUSION.

We are of the opinion, that with our four inspectors, and the varied type of work which we have been called upon to do, we have been able to render a real service to Kansas. Next year we hope to do even better work, with the added equipment of automobiles, even with the same appropriation for travel expenses.

WORK REPORT FOR YEAR ENDING MAY 31, 1931.

	First quarter.	*Second quarter.*	*Third quarter.*	*Fourth quarter.*	*Total.*
Inspections	1,047	7,915	1,646	822	11,430
Samples	286	4	772	861	8,853
Scales inspected	13	1,477	2,291	728	4,509
Scales condemned	0	6	35	15	56
Weights inspected	81	2,369	3,480	877	6,807
Weights condemned	0	54	62	39	155
Measures inspected	0	135	496	187	818
Measures condemned	0	30	61	33	124
Prosecutions	67	12	16	5	100
Towns visited	81	170	198	88	537
Written orders	2	148	305	141	496
Expenses	$1,018.84	$1,343.09	$1,281.38	$370.05	$4,013.36

CONDENSED REPORT OF INSPECTIONS FOR YEAR ENDING MAY 31, 1931.

	Good.	*Fair.*	*Poor.*	*Special.*	*Total.*
Groceries	627	220	10	45	902
Groceries, meats	743	240	11	40	1,034
Meats	105	30	2	44	181
Drugs	385	72	4	10	471
Confectionery	549	271	10	54	884
Bakery	119	50	5	10	184
Slaughterhouse	0	0	1	3	4
Produce	8	2	0	11	21
Dairies	5	2	0	267	274
Eggs	0	0	0	148	148
Concessions	0	0	0	7,473	7,473
Sanitation	0	0	0	93	93
Creamery	8	0	0	0	8
Milk	4	0	0	86	90
Bottling works	6	2	0	0	8
Fruits	4	3	1	1	9
Variety	11	5	0	0	16
Official	0	0	0	187	187
	2,574	897	44	8,472	11,987

Letters received	3,210
Packages received	52
Other mail received	962
Telegrams received	19
Telephone calls received:	
Local	307
Long distance	31
Letters sent out	873
Packages sent out	157
Other mail sent out	1,258
Telegrams sent out	19
Telephone calls sent out:	
Local	202
Long distance	35

PROSECUTIONS MADE DURING YEAR ENDING MAY 31, 1931.

1. Violation of egg-candling regulations; fine $5, costs $2.50.
2. Violation of egg-candling regulations; fine $5, costs $1.50.
3. Violation of egg-candling regulations; fine $1, costs $1.50.
4. Violation of egg-candling regulations; fine $1, costs $1.30.
5. Violation of egg-candling regulations; fine $5, costs $3.50.
6. Violation of egg-candling regulations; fine $5, costs $3.50.
7. Improper display; fine $8.50, costs $3.50.
8. Violation of egg-candling regulations; fine $5, costs $3.50.
9. Violation of egg-candling regulations; fine $5, costs $3.50.
10. Violation of egg-candling regulations; fine $10, costs $1.
11. Violation of egg-candling regulations; fine $1, costs $2.75.
12. Violation of egg-candling regulations; fine $1, costs $2.75.
13. Violation of egg-candling regulations; fine $10, costs $5.
14. Violation of egg-candling regulations; fine $10, costs $4.75.
15. Violation of egg-candling regulations; fine $10, costs $4.75.
16. Violation of egg-candling regulations; fine $10, costs $6.75.

17. Violation of egg-candling regulations; fine $10, costs $4.75.
18. Violation of egg-candling regulations; fine $10, costs $4.75.
19. Violation of egg-candling regulations; fine $10, costs $6.75.
20. Violation of egg-candling regulations; fine $10, costs $3.50.
21. Violation of egg-candling regulations; fine $1, costs $2.
22. Violation of egg-candling regulations; fine $10, costs $3.50.
23. Violation of egg-candling regulations; fine $5, costs $3.50.
24. Violation of egg-candling regulations; fine $5, costs remitted.
25. Violation of egg-candling regulations; fine $10, costs $3.
26. Violation of egg-candling regulations; fine $10, costs $3.
27. Violation of egg-candling regulations; fine $10, costs $2.50.
28. Violation of egg-candling regulations; fine $2, costs $2.
29. Violation of egg-candling regulations; fine $5, costs remitted.
30. Violation of egg-candling regulations; fine $10, no costs.
31. Violation of egg-candling regulations; fine $10, costs $2.50.
32. Violation of egg-candling regulations; fine $10, costs $3.25.
33. Violation of egg-candling regulations; fine $10, costs $3.50.
34. Violation of egg-candling regulations; fine $3.50, costs $2.50.
35. Violation of egg-candling regulations; fine $5, costs $2.50.
36. Violation of egg-candling regulations; fine and costs $4.50.
37. Violation of egg-candling regulations; fine and costs $4.50.
38. Violation of egg-candling regulations; fine and costs $5.50.
39. Violation of egg-candling regulations; fine and costs $5.50.
40. Violation of egg-candling regulations; fine and costs $5.50.
41. Violation of egg-candling regulations; fine and costs $5.50.
42. Violation of egg-candling regulations; fine and costs $5.50.
43. Violation of egg-candling regulations; fine and costs $10.25.
44. Violation of egg-candling regulations; fine and costs $10.25.
45. Violation of egg-candling regulations; fine and costs $10.25.
46. Violation of egg-candling regulations; fine and costs $10.25.
47. Violation of egg-candling regulations; fine and costs $4.
48. Violation of egg-candling regulations; fine and costs $4.
49. Violation of egg-candling regulations; fine and costs $4.50.
50. Violation of egg-candling regulations; fine and costs $10.25.
51. Violation of egg-candling regulations; fine and costs $10.25.
52. Violation of egg-candling regulations; fine and costs $10.25.
53. Violation of egg-candling regulations; fine $10, costs $9.75.
54. Violation of egg-candling regulations; fine $10, costs remitted.
55. Violation of egg-candling regulations; fine $10, costs $4.75.
56. Violation of egg-candling regulations; fine $10, costs $4.50.
57. Violation of egg-candling regulations; fine $10, costs $7.50.
58. Violation of egg-candling regulations; fine $10, costs $3.
59. Violation of egg-candling regulations; fine $10, costs $10.
60. Violation of egg-candling regulations; fine $5, costs $5.75.
61. Violation of egg-candling regulations; fine $5, costs $5.75.
62. Violation of egg-candling regulations; fine $5, costs $5.75.
63. Violation of egg-candling regulations; fine $5, costs $5.75.
64. Violation of egg-candling regulations; fine and costs $10.25.
65. Violation of egg-candling regulations; fine and costs $10.25.
66. Violation of egg-candling regulations; fine $5, costs $5.75.
67. Adulterated bakery goods; fine $5, costs $5.
68. Violation of egg-candling regulations; pleaded not guilty.
69. Violation of egg-candling regulations; fine and costs $5.
70. Violation of egg-candling regulations; fine and costs $3.
71. Violation of egg-candling regulations; fine and costs $5.
72. Violation of egg-candling regulations; fine and costs $7.50.
73. Violation of egg-candling regulations; fine and costs $7.50.
74. Violation of egg-candling regulations; fine and costs $7.50.
75. Violation of egg-candling regulations; fine and costs $5.50.
76. Violation of egg-candling regulations; fine and costs $8.50.
77. Insanitary soda fountain; fine $5, costs $2.50.
78. Unprotected foods, insanitary grocery; fine $10, costs $5.50.
79. Unprotected foods, illegal displays; fine $8, costs $5.50.
80. Uncovered goods; fine $5, costs $2.50.
81. Uncovered goods; fine $5, costs $2.50.
82. Uncovered goods; fine $5, costs $2.50.
83. Uncovered goods; fine $5, costs $2.50.
84. Uncovered goods; fine $5, costs $2.50.
85. Uncovered goods; fine $5, costs $2.50.
86. Uncovered goods; fine $5, costs $2.50.
87. Insanitary slaughter house; fine $5, costs $11.75.
88. Insanitary grocery store; fine and costs $7.50.
89. Sterilizing at fountain; fine $1, costs $15.
90. Sterilizing at fountain; fine $1, costs $15.
91. Insanitary meat market; fine $1, costs $15.
92. Insanitary meat market; fine $5, costs $15.
93. Uncovered foods, insanitary; fine $5, costs $15.
94. Insanitary grocery; fine $20; costs $11.75.
95. Insanitary floor, unprotected goods; fine $5, costs $4.25.
96. Uncovered foods, illegal display; fine $5, costs $4.25.
97. Uncovered foods, illegal display; fine $5, costs $4.25.
98. Insanitary floor, uncovered goods; fine $4, costs $4.25.
99. Unprotected displays; fine $1, costs $1.
100. Failure to candle eggs; fine $10, costs $3.75.

101. Failure to candle eggs; fine $10, costs $3.75.
102. No weight on bread; fine $10, costs $6.95.
103. Failure to candle eggs; fine $10, costs remitted.
104. Unprotected food displays; fine $5, costs $5.75.

FOODS, DRUGS AND UTENSILS CONDEMNED DURING YEAR, JUNE 1, 1930, TO MAY 31, 1931.

Amount, articles; why condemned.

JUNE.

30 pounds coffee; contaminated.
129 gallons milk; visible dirt.

JULY: None.

AUGUST.

2 jars pickles; zinc top.
48 candy bars; wormy.
6 pounds hamburger; spoiled.
40 ice cream cones; dirty.
111 pounds hamburger; spoiled.
1 egg candler; not satisfactory.

SEPTEMBER.

20 bottles milk; visible dirt.
18 quarts cream; visible dirt.
134 pounds hamburger; spoiled.
24 cups and glasses; insanitary.

OCTOBER.

1 quart yellow coloring; illegal.
4 pounds ammonia; illegal.
8 pounds candy; old.
140 pounds corn meal; wormy.
4 pounds figs; wormy.
24 cans kraut; swells.
8 cans berries; swells.
9 pounds steaks; spoiled.
5 quarts, 5 pints vinegar; zinc tops.
5 pounds hamburger; spoiled.
90½ quarts milk; dirty.

NOVEMBER.

4½ pounds hamburger; spoiled.
50 pounds beef and pork; spoiled.
12 pounds ham; old and musty.
6 quarts vinegar; zinc tops.
27½ quarts milk; visible dirt.
14 cans berries; swells.
16 cans peaches; swells.
1 scale; readjustment.
8 gallon containers; tin.

DECEMBER.

114 quarts milk; visible dirt.
72 pounds hamburger; spoiled.
6 pounds preservative; illegal.
5 hams; spoiled.
5 pounds T-bone steaks; spoiled.
20 pounds beef; old and deteriorated.
14 pounds mutton; spoiled.
5 pounds pork; spoiled.
85 pounds beef and pork; spoiled.
4 benches; insanitary.
1 kneading board; insanitary.
1 scale; incorrect.
1 glass server; insanitary.

JANUARY.

8 pints cream; visible dirt.
25 gallons milk; visible dirt.
90 quarts milk; visible dirt.
19 tins sardines; old.
15 glasses mustard; old.
8 quarts beans; old.
4 quarts kraut; old.
7 cans pumpkin; old.
45 pounds pork; old and deteriorated.
5 pounds pork and beef; spoiled.
200 pounds flour; mice eaten.
50 pounds meal; mice eaten.
1 quart yellow coloring; illegal.
26 hooks; old and rusty.
2 buckets; old and rusty.
1 strainer; old and rusty.
1 can, 5-gallon; old and rusty.
1 tin funnel; old and rusty.
1 tin measure; old and rusty.
1 knife; old and rusty.
6 gallon containers (tin); old and rusty.

FEBRUARY.

14 quarts milk; visible dirt.
12 pounds cheese; old and moldy.
3 pounds steak; old, damaged by fire and water.
14 pounds raisins; old; damaged by fire and water.
10 pounds buckwheat; old; damaged by fire and water.
8 pounds noodles; old; damaged by fire and water.
41 pounds fruit; old; damaged by fire and water.
113 pounds vegetables; old; damaged by fire and water.
32 pounds honey; old; damaged by fire and water.
10 pounds meats; moldy.
1 metal dipper; rusty.
2 tin funnels; rusty.

MARCH.

10 quarts milk; visible dirt.
2 pounds hamburger; spoiled.
40 boxes peanut brittle; old and wormy.
8 quarts assorted canned fruits; rusty and swells.
8 pints assorted canned fruits; rusty and swells.
12 ounces syrup; hydriodic acid.
40 pounds Lingon berries; spoiled.
14 meat hooks; rusty.
2 tin funnels; rusty.

APRIL.

20 pounds dried peaches; old and musty.
4 pounds hamburger; spoiled.
150 pounds flour; mice eaten.
60½ quarts milk; dirty.

MAY.

152 loaves bread; illegal weight.
81 quarts milk; dirty.
1 gallon coca cola; dirty.
95 gallons vinegar; illegal.
141 pounds meat; old.
25 pounds hamburger; old.
100 pounds flour; mice eaten.
12 cans pumpkin; swells and springers.
3 cans strawberries; swells and springers.
7 cans cherries; swells and springers.
1 Coca-cola syphon; insanitary.
2 scales; repairs.
5 drinking fountains; illegal.
6 gallon tin containers; rusty.
1 bucket; tin, rusty.
2 cups; tin, rusty.
1 funnel; tin, rusty.
16 meat hooks; rusty.

SAMPLES COLLECTED AND ANALYZED DURING THE YEAR 1930-1931.

Inspector's No.; articles; results of analysis.

75110..Butter; legal.
75111—Butter; legal.
75112..Butter; legal.
75113..Butter; legal.
75117..Butter; legal.
75118..Butter; legal.
75119..Butter; legal.
75120..Butter; legal.
75121..Butter; legal.
75122..Butter; legal.
75123..Butter; legal.
75124..Butter; legal.
75125..Butter; legal.
75126..Butter; legal.
75127..Butter; legal.
75128..Butter; legal.
75129..Butter; legal.
75130..Butter; legal.
75131..Butter; legal.
75132..Butter; legal.
75134..Butter; legal.
75135..Butter; legal.
75136..Butter; legal.
75137..Butter; legal.
75138..Butter; legal.
75139..Butter; legal.
75140..Butter; legal.
75141..Butter; legal.
75142..Butter; legal.
75143..Butter; high in moisture, low in butter fat.
75144..Butter; legal.
75145..Butter; legal.
75146..Butter; legal.
75147..Butter; legal.
75148..Butter; legal.
75149..Butter; legal.
75153..Butter; legal.
75154..Butter; legal.
75155..Butter; legal.
75156..Butter; legal.
75157..Butter; legal.
75158..Butter; legal.
75159..Butter; indication of foreign fat.
75160..Butter; indication of foreign fat.
75161..Butter; indication of foreign fat.
75162..Butter; indication of low quality.
75163..Butter; indication of foreign fat.
75164..Butter; legal.
75165..Butter; legal.
75166..Butter; legal.
75167..Butter; legal.
75168..Butter; legal.
75169..Butter; legal.
75170..Butter; legal.
75171..Butter; legal.
75081..Butter; contains coconut oil.
75082..Butter; contains coconut oil.
75083..Butter; contains coconut oil.
75084..Butter; contains coconut oil.

Inspector's No.; articles; results of analysis.

75085..Butter; contains coconut oil.
75086..Butter; contains coconut oil.
75087..Butter; legal.
75088..Butter; legal.
75091..Butter; contains foreign oil.
75092..Butter; contains foreign oil.
75093..Butter; contains foreign oil.
75095..Butter; contains foreign oil.
7509¢..Butter; contains foreign oil.
75097..Butter; legal.
75098..Butter; legal.
549..Butter; legal.
75115..Butter; legal.
10199..Beer, near; legal.
10200..Beer, near; illegal, caffeine present.
10201..Beer, near; illegal, caffeine present.
10202..Beer, near; legal.
10203..Beer, near; legal.
10204..Beer, near; legal.
10205..Beer, near; illegal, caffeine present.
10206..Beer, near; legal.
10207..Beer, near; legal.
10208..Beer, near; legal.
10209..Beer, near; legal.
10210..Beer, near; legal.
10211..Beer, near; legal.
10212..Beer, near; legal.
10213..Beer, near; legal.
10214..Beer, near; legal.
75150..Candy eggs; legal.
550..Candy eggs; legal.
40626..Hamburger; legal.
51160..Walnuts, English; legal.
51161..Walnuts, English; legal.
10215..Corn, sweet; legal.
10216..Corn, sweet; legal.
10217..Corn, sweet; legal.
10218..Corn, sweet; legal.
10219..Corn, sweet; legal.
75075..Apples; legal.
75076..Apples; legal.
548..Vanilla flavoring; artificial.
75072..Meats; passed.
75071..Meats; passed.
75133..Raisins; legal.
10198..Punch concentrate; passed.
75089..Flour; contains arsenate of lead in quantity.
547..Grape juice; fermented.
75151..F. E. ginger; illegal.
51165..Water; legal.
51162..Water; illegal.
51164..Water; illegal.
51163..Water; illegal.
75114..Denicotinized cigars; contained .84 per cent nicotine.
75173..Epsom salts; legal.
75058..Coro-noleum; per cent, 8.
75059..Comax; per cent, 1.1.
75060..Micro-Mrc.; per cent, 6.

In conjunction with the state dairy department several hundred milk samples have been collected and analyzed.

Report for the Fiscal Year Ending May 31, 1932.

INTRODUCTION.

Our activities from June 1, 1931, to May 31, 1932, will comprise this annual report. Our work during this period has been somewhat diversified and a very small part of it consists of regular inspection work. The special activities have been milk investigation work, inspection of fairs, special egg work, cooperation with the federal authorities, and investigation of complaints referred to this office which arise in the various parts of the state.

SPECIAL WORK.

During the month of June the special milk investigation work was in the city of Topeka. After finishing this work the report of our findings was given to the city officials. Resulting from this report the mayor called for a milk hearing to determine whether our findings relative to the milk situation in Topeka were correct. At the close of the investigation our findings were found to be correct in every detail. Mr. Ketchum, mayor of Topeka, asked Dr. Brown and myself to meet with the city commission to formulate a new milk ordinance for the city. After several meetings, the United States standard milk ordinance was adopted and is in force in the city at this time. Other milk work in conjunction with a representative from the American Child Health Association of New York City and with the dairy commissioner's office was done in the cities of Clay Center, Emporia, Junction City, Hays, Ellis, Herington, Abilene, Hiawatha, Concordia, Wellington, Winfield, Leavenworth, Hutchinson, Wichita and Coffeyville. Results obtained from this work are that several cities have, or are contemplating the adoption of the United States standard milk ordinance, or other milk ordinances. It is the intention of this department in conjunction with the U. S. Public Health Service to continue this important work in the state of Kansas. At the present time there are several cities who wish to adopt the standard milk ordinance and it is our desire to coöperate with the officials of these cities in the proper enforcement of this ordinance when adopted.

The special egg work performed by this department was done during the months of July and August, and a part of September. The method used in this work was to visit the different egg concentrating centers, inspecting individual shipments which are shipped into these centers. Through the inspection of these shipments we are able to determine those shippers who are violators of our egg shipping regulations. The concentration points visited during this work were, Pittsburg, Fort Scott, Paola, Blue Rapids, Chanute, Garnett, Osawatomie, Dodge City, Atchison, Goff, Hiawatha, Abilene, Salina, Colby, Kansas City, Mankato, Norton, Manhattan, Beloit, Smith Center and Burlington.

The special work in conjunction with the federal authorities consisted in the collection of samples of food and drugs requested by that department. Other work in conjunction with the Federal Food and Drug Department, is the embargoing of food and drug in the law, which are either misbranded or adulterated in violation of the federal food and drug act.

The handling of complaints which come to the office has become a tremendous task and necessitates practically the full time of one inspector.

Other special work which is handled by this department is the inspection of food and drink stands at state fairs, county fairs and other public gathering places. This work has grown so much that it requires our attention practically three months out of the year, the different fair organizations realizing that proper supervision as to sanitation over these establishments is an asset to the success of the fairs. In doing this special work we have found that the operators of these stands do many things in the manufacture and preparation of their commodities which constitute real health hazards, and it is our request that this board adopt regulations which will be presented at this meeting to regulate and abate some of these practices. To be more concrete, the regulations which have been mentioned are to regulate the sale of drinks and the sale of frozen confections. The fairs worked were at Barnes, Stockton, Belleville, Phillipsburg, Parsons, La Cygne, Girard, Norton, Mayetta, Marion, Iola, Big Springs, Topeka, Beloit, Horton, Hutchinson, Abilene, Marysville, Clay Center, Dodge City, Colby, Ottawa and Salina.

REGULAR INSPECTION WORK.

The regular inspection work as done by this department consists of sanitary inspection of food and drug establishments and to see that packages of food and drugs are properly labeled as to comply with the food and drug laws. This department is also charged with the enforcement of the weights and measures laws and the inspection of weights and measures constitute a part of our regular inspection work. Where violators are noted the inspectors issued written orders to correct such violations and when such corrections are made this office is notified. Where the violations are willful, proceedings are made against the violators. When weights and measures are found to be giving wrong weights, and measures damaged so that proper measure cannot be given, such weights and measures are condemned for use until repaired. In this work numerous samples of foods and drugs are collected where misbranding is suspected or where food and drugs are suspected of being damaged too much for human consumption. These samples are sent to the food and drug laboratories situated at Kansas University, at Lawrence, Kan., and at the Kansas State College at Manhattan. When samples of food or drugs are found to be unfit for human consumption proper steps are taken to see that such food or drugs do not enter the channels of trade.

AUTOMOBILES.

As you know the 1931 legislature equipped our department with 4 Ford automobiles. With the aid of this kind of transportation we have been able to do more and better work than has been done in the past.

SUMMARY.

The following results attached in tabulated form have been accomplished by this department: 13,734 inspections were made; 1,203 towns visited against 537 towns last year; 4,428 samples were collected and analyzed, and 126 prosecutions instigated and terminated against those violators of our food and drug laws. All this work was done at an expense of $3,384.05.

A brief report of our operating expense cost for the automobiles this year, shows 67,232 miles traveled; gallons of gas used, 3,929; quarts of oil used, 438, and average miles per gallon 17.1. The average cost per mile to operate these cars was 2.64 cents; in dollars the cost was $789.78.

CONDENSED REPORT OF INSPECTIONS FOR YEAR ENDING MAY 31, 1931.

	Good.	*Fair.*	*Poor.*	*Special.*	*Total.*
Groceries	500	269	10	100	879
Groceries and meat	663	253	17	100	1,033
Meat	57	28	5	21	111
Drugs	370	87	5	18	480
Bakery	81	67	7	37	192
Variety	20	4	0	12	36
Cafes	476	292	17	1,393	2,178
Fruit	7	1	..	17	25
Eggs	..	..	..	1,125	1,125
Produce	29	4	..	36	69
Sanitation	15	12	..	248	275
Officials	95	..	..	442	537
Concessions	..	..	..	5,855	5,855
Creamery	6	..	..	1	7
Milk	9	3	1	630	643
Bottling	7	3	..	..	10
Slaughter house	..	1	1	3	5
Dairy	1	1	..	264	264
T. camp	66	2	..	..	8
	2,342	1,026	64	10,302	13,734

INCOMING AND OUTGOING MAIL.

Letters received	890
Packages received	50
Other mail received	43
Telephone calls:	
Local	269
Long distance	15
Letters sent out	915
Packages sent	171
Other mail sent	3,108
Telegrams sent	5
Telephone calls:	
Local	169
Long distance	19

WORK REPORT FOR YEAR ENDING MAY 31, 1932.

	First quarter.	*Second quarter.*	*Third quarter.*	*Fourth quarter.*	*Total.*
Inspections	2,513	5,697	3,297	3,227	13,734
Samples	2,905	1,279	116	128	4,428
Scales inspected	68	270	1,989	2,884	5,211
Scales condemned	....	....	....	31	31
Weights inspected	119	233	2,201	3,446	5,999
Weights condemned	....	....	....	71	71
Measures inspected	....	174	491	486	1,151
Measures condemned	....	....	....	37	37
Prosecutions	....	....	....	....	126
Towns visited	323	83	381	416	1,203
Written orders	59	43	243	427	777
Expense	$852.47	$1,012.21	$1,069.13	$950.24	$3,884.05

PROSECUTIONS MADE DURING YEAR ENDING MAY 31, 1932.

1. Not candling eggs; fine $5, costs $3.25.
2. Not candling eggs; fine $5, costs $3.75.
3. Not candling eggs; fine $1, costs $9.85.
4. Not candling eggs; fine $1, costs $1.50.
5. Not candling eggs; fine $1, costs $3.50.
6. Not candling eggs; fine $1, costs $3.
7. Not candling eggs; fine $5, costs $3.25.
8. Not candling eggs; fine and costs $10.80.
9. Not candling eggs; fine and costs $10.80.
10. Not candling eggs; fine and costs $10.80.
11. Not candling eggs; fine and costs $10.80.
12. Not candling eggs; fine and costs $10.80.
13. Not candling eggs; fine and costs $10.80.
14. Not candling eggs; fine and costs $10.80.
15. Not candling eggs; fine and costs $10.80.
16. Not candling eggs; fine and costs $3.75.
17. Not candling eggs; fine and costs $7.
18. Not candling eggs; fine and costs $7.

19. Not candling eggs; fine and costs $7.
20. Not candling eggs; fine and costs $10.80.
21. Not candling eggs; fine and costs $10.80.
22. Not candling eggs; fine and costs $10.80.
23. Not candling eggs; fine $10, costs $4.
24. Not candling eggs; fine $10, costs $4.10.
25. Not candling eggs; fine $10, costs $1.
26. Not candling eggs; fine $10, costs $10.25.
27. Not candling eggs; fine $10, costs $10.25.
28. Not candling eggs; fine $10, costs $10.25.
29. Not candling eggs; fine $10, costs $10.25.
30. Not candling eggs; fine $10, costs $3.
31. Not candling eggs; fine $10, costs $3.
32. Not candling eggs; fine $1, costs $2.
33. Not candling eggs; fine $1, costs $2.
34. Not candling eggs; fine $5, costs $1.
35. Not candling eggs; fine $5, costs $1.
36. Not candling eggs; fine $5, costs $1.
37. Not candling eggs; fine $5, costs remitted.
38. Not candling eggs; fine $5, costs $10.
39. Not candling eggs; fine $5, costs $10.
40. Not candling eggs; fine $10, costs $4.
41. Not candling eggs; fine $10, costs $4.
42. Not candling eggs; fine $10, costs $4.
43. Not candling eggs; fine $5, costs $1.
44. Not candling eggs; fine $5, costs $1.
45. Insanitary meat pedder; fine $1, costs $10.30.
46. Insanitary grocery and meat market.
47. Not candling eggs; fine $10, costs $2.50.
48. Not candling eggs; fine $10, costs $2.50.
49. Not candling eggs; fine $10, costs $2.50.
50. Not candling eggs; fine $10, costs $2.50.
51. Not candling eggs; fine $10, costs none.
52. Short weight bread; fine $5, costs $5.75.
53. Short weight bread; fine $5, costs $5.75.
54. Short weight bread; fine $5, costs $7.75.
55. Short weight bread; fine $5, costs $7.75.
56. Short weight bread; fine $5, costs $7.75.
57. Short weight bread; fine $5, costs $7.75.
58. Bread not marked exact weight; fine $1, costs $2.50.
59. Bread not marked exact weight; fine $1, costs $2.50.
60. Bread not marked exact weight; fine none.
61. Bread not marked exact weight; fine $2, costs $1.
62. Bread not marked exact weight; fine $2, costs $1.
63. Bread not marked exact weight; fine $2, costs $1.
64. Bread not marked exact weight; fine $5, costs $3.95.
65. Bread not marked exact weight; fine $2, costs $2.50.
66. Bread not marked exact weight; fine $5, costs $2.
67. Illegal size bread and dirty fountain; fine $5, costs $2.50.
68. Illegal sidewalk display; fine $1, costs $5.75.
69. Illegal sidewalk display; fine $1, costs $12.
70. Adulterated honey; fine $10, costs $9.35.
71. Watered milk; fine $25, costs $6.
72. Insanitary meat market; fine $2, costs $2.50.
73. Dirty refrigerator; fine $2, costs $1.
74. Dirty refrigerator; fine and costs $3.50.
75. Dirty fountain; fine and costs $3.50.
76. Insanitary transportation; fine $5, costs $6.25.
77. Uncovered candies; fine $2, costs $2.50.
78. Uncovered goods; fine $1, costs $2.
79. Uncovered goods; fine $1, costs $2.
80. Uncovered goods; fine $1, costs $2.50.
81. Uncovered goods; fine $1, costs $2.50.
82. Uncovered goods; fine $1, costs $2.50.
83. Uncovered goods; fine $1, costs $2.50.
84. Uncovered goods; fine $1, costs $2.85.
85. Uncovered goods; fine $1, costs $2.85.
86. Uncovered goods; fine $1, costs $2.85.
87. Uncovered goods; fine $1, costs $3.
88. Uncovered goods; fine $1, costs $3.
89. Uncovered goods; fine $1, costs $5.50.
90. Uncovered goods; fine $1, costs $5.50.
91. Uncovered goods; fine $1, costs $5.75.
92. Uncovered goods; fine $1, costs $5.75.
93. Uncovered goods; fine $1, costs $5.75.
94. Uncovered goods; fine $1, costs $5.75.
95. Uncovered goods; fine $1, costs $0.75.
96. Uncovered goods; fine $1, costs $0.50.
97. Uncovered goods; fine $1, costs $0.50.
98. Uncovered goods; fine $1, costs $1.50.
99. Uncovered goods; fine $1, costs $1.50.
100. Uncovered goods; fine $1, costs $1.50.
101. Uncovered goods; fine $1, costs $1.50.
102. Uncovered goods; fine $1, costs $1.50.
103. Uncovered goods; fine $1, costs $2.
104. Uncovered goods; fine $1, costs $2.
105. Uncovered goods; fine $2, costs $2.
106. Uncovered goods; fine $2, costs $2.
107. Uncovered goods; fine $1, costs $3.
108. Uncovered goods; fine $1, costs $4.50.
109. Uncovered goods; fine $1, costs $4.50.
110. Uncovered goods; fine $1, costs $2.90.
111. Uncovered goods; fine $1, costs $7.75.
112. Uncovered goods; fine $1, costs $7.75.
113. Uncovered goods; fine $1, costs $2.
114. Uncovered goods; fine $1, costs none.
115. Uncovered goods; fine $5, costs $1.
116. Uncovered goods; fine $5, costs $1.
117. Uncovered goods; fine and costs $3.50.
118. Uncovered goods; fine and costs $3.50.
119. Uncovered goods; fine and costs $3.50.
120. Uncovered goods; fine $0.02, costs $7.
121. Uncovered goods; fine $0.01, costs $3.25.
122. Uncovered goods; fine $0.01, costs $3.25.
123. Uncovered goods; fine $15, costs $4.
124. Uncovered goods; fine $10, costs $4.
125. Uncovered goods; fine $1, costs $2.50.
126. Uncovered goods; fine $1, costs $2.50.

FOODS, DRUGS AND UTENSILS CONDEMNED DURING YEAR, JUNE 1, 1931, TO MAY 31, 1932.

Amount, articles; why condemned.

JUNE: None.

JULY: None.

AUGUST:

10 pounds hamburger; held overnight, old.
7 quarts milk; sediment.

SEPTEMBER.

18 pounds hamburger; old, held overnight.
36 quarts milk; dirty.

OCTOBER.

1 coal oil egg candler; illegal.
1 quart milk; visible dirt.

NOVEMBER: None.

DECEMBER.

5 quarts milk; visible dirt.

JANUARY.

181 quarts milk; visible dirt.
5 pounds beef; spoiled.
37 pounds beef and pork; spoiled.
25 pounds hamburger; spoiled.
3 quarts pickles; zinc tops.
6 pounds dates; dirty.
25 pounds prunes; wormy.
22 cans various fruits; swells.
8 cans chili (shaker top); wormy.
23 cans peaches; swells.
58 cans berries; swells.
36 cans kraut; swells.
11 cans apple sauce; swells.
11 cans plums; swells.
12 cans sweet corn; swells.
14 cans beets; swells.
4 fountain syrup jars; broken.
1 ladle; rusted.
10 ounces syrup of basham; old.
10 ounces syrup of hydrochloric acid; old.
10 ounces hypophosphites; old.

FEBRUARY.

3 dressed poultry; old.
48 (pint) cans milk; old.
26 cans canned goods; swelled.
1 lot hamburger; spoiled.
1 lot beef; spoiled.
22 loaves bread; no weight declared.
2 quarts milk; visible dirt.
10 pounds beef; spoiled.
23 screw hooks; rusty.
36 cans ripe olives; swelled.
6 pounds beef; spoiled.
40 pounds liver; old.
27 cans canned goods; swelled.

Amount, articles; why condemned.

MARCH.

1 vinegar pump; insanitary.
1 cup and fountain; insanitary.
1 cup and fountain; insanitary.
16 screw hooks; insanitary.
10 pounds hamburger; spoiled.
8 screw hooks; insanitary.
24 meat hooks; insanitary.
8 quarts milk; visible dirt.
24 1-ounce cans B. raspberries; swells.
4 cans kraut; swells.
8 cans sardines; swells.
8 pounds meat; spoiled.
10 pounds weinies; spoiled.
½ ham fresh pork; spoiled.
5 pounds beef; spoiled.
8 pounds liverwurst; spoiled.
3 pounds head cheese; spoiled.
250 pounds salt mackerel; spoiled.

APRIL.

9 cans blackberries; swells.
5 15-ounce cans sardines; swells.
30 cans sardines; swells.
6 cans fruit salad; swells.
4 pounds dates; wormy.
1 stack bacon; not fit for food.
15 pounds peanut candy; old and dirty.
3 quarts milk; visible dirt.
5 quarts milk; visible dirt.
6 quarts milk; visible dirt.
6 quarts milk; visible dirt.
3 quarts milk; visible dirt.
21 loaves bread; misbranded.
66 loaves bread; misbranded.
12 meat hooks; rusty.
14 meat hooks; rusty.
1 cup and bucket; insanitary.
1 cup and bucket; insanitary.
1 cup and bucket; insanitary.
1 water cooler; insanitary.
2 buckets; insanitary.
4 cups; insanitary.
15 meat hooks; rusty.
2 trough covers; rusty.
5 tin gallon cans; rusty.
5 tin containers; rusty.
1 barrel; insanitary.

MAY.

7 1-pound bricks chili; moldy.
10 cans plums; swells.
12 cans pears; swells.
10 cans ripe olives; swells.
2 ½ pints cream; visible dirt.
2 drinking cups; insanitary.
8 screw hooks; insanitary.

SAMPLES COLLECTED AND ANALYZED DURING THE YEAR 1931-1932.

Insp. No.; articles; results.

552—Garlic; decomposed.
553..Cleaner; undesirable.
7001..Evaporated milk; legal.
7007..Honey; glucose absent.
7008..Honey; glucose present.
7009..Honey; glucose present.
7010..Honey; glucose present.
7011..Milk; legal.
7012..Milk; legal.
7013..Milk; legal.
7014..Milk; illegal.
7015..Milk; illegal.
7016..Milk; illegal.

Insp. No.; articles; results.

7017..Sugar corn; legal.
7018..Sugar corn; illegal.
7019..Sugar corn; legal.
7020..Sugar corn; legal.
7021..Sweet corn; legal.
7022..Sweet corn; legal.
7023..Sweet corn; legal.
7024..Sweet corn; illegal.
7025..Sweet corn; illegal.
7026..Sweet corn; legal.
7027..Sweet corn; legal.
7028..Sweet corn; legal.
7030..Sugar corn; legal.

Insp. No.; articles; results.

7031..Sweet corn; legal.
7032..Sweet corn; illegal.
7033..Sugar corn; legal.
7034..Sugar corn; legal.
7035..Sweet corn; legal.
7036..Sugar corn; legal.
7037..Sweet corn; legal.
7038..Sweet corn; legal.
7039..Sweet corn; illegal.
10220..Evaporated milk; legal.
10221..Evaporated milk; legal.
10222..Evaporated milk; legal.
10223..Evaporated milk; legal.
10224..Evaporated milk; legal.
10225..Evaporated milk; legal.
10226..Evaporated milk; legal.
10227..Evaporated milk; legal.
10228..Soda water; legal.
10229..Soda water; legal.
10230..Soda water; legal.
10231..Soda water; legal.
10232..Soda water; legal.
10233..Soda water; legal.
10234..Soda water; legal.
10235..Soda water; legal.
10236..Soda water; legal.
10237..Soda water; legal.
10238..Soda water; legal.
10239..Soda water; legal.
10240..Soda water; legal.
10241..Soda water; legal.
10242..Soda water; legal.
10243..Soda water; legal.
10244..Milk; legal.
10245..Milk; legal.
10246..Milk; legal.
10247..Milk; legal.
10248..Milk; legal.
10249..Milk; legal.
10250..Milk; legal.
10251..Milk; legal.
10252..Milk; legal.
10253..Milk; legal.
10254..Milk; legal.
10255..Milk; legal.
10256..Milk; legal.
10257..Milk; legal.
10258..Milk; legal.
10259..Milk; legal.
10260..Milk; legal.
10261..Milk; legal.
10262..Milk; legal.
10263..Milk; legal.
10264..Milk; legal.
10265..Milk; legal.
10266..Milk; legal.
10267..Milk; legal.
10268..Milk; legal.
10269..Milk; legal.
10270..Milk; legal.
10271..Milk; legal.
10272..Milk; legal.
10273..Milk; legal.
10274..Milk; legal.
10275..Milk; legal.
10276..Milk; legal.
10277..Milk; legal.
10278..Milk; legal.
10279..Milk; broken.
10280..Milk; broken.
10281..Milk; legal.
10282..Milk; legal.
10283..Milk; legal.
10284..Milk; legal.
10285..Milk; legal.
10286..Milk; legal.
10287..Milk; legal.
10289..Milk; legal.
10288..Milk; legal.
10290..Milk; legal.

Insp. No.; articles; results.

10291..Milk; legal.
10292..Milk; legal.
10293..Milk; legal.
10294..Milk; legal.
10295..Milk; legal.
10296..Milk; legal.
10297..Milk; legal.
10298..Milk; legal.
10299..Milk; legal.
10300..Milk; legal.
10301..Milk; legal.
10302..Milk; legal.
10303..Milk; legal.
10304..Milk; legal.
10305..Milk; legal.
10306..Milk; legal.
10307..Milk; legal.
10308..Milk; legal.
10309..Milk; legal.
10310..Milk; legal.
10311..Milk; legal.
10312..Milk; legal.
10313..Milk; legal.
10314..Milk; legal.
10315..Milk; legal.
10316..Milk; legal.
10317..Milk; legal.
10318..Milk; legal.
10319..Milk; legal.
10320..Milk; legal.
10321..Milk; legal.
10322..Milk; legal.
10323..Milk; legal.
10324..Milk; legal.
10325..Milk; legal.
10326..Milk; legal.
10327..Milk; legal.
10328..Milk; legal.
10329..Milk; legal.
10330..Milk; legal.
10331..Milk; legal.
10332..Milk; legal.
10333..Milk; legal.
10334..Milk; legal.
10335..Milk; legal.
10336..Milk; legal.
10337..Milk; legal.
10338..Milk; legal.
10339..Milk; legal.
10340..Milk; legal.
10341..Milk; legal.
10342..Milk; legal.
10343..Milk; legal.
10344..Milk; legal.
10345..Milk; legal.
10346..Milk; legal.
10347..Milk; legal.
10348..Milk; legal.
10349..Milk; legal.
10350..Milk; legal.
10351..Milk; legal.
10352..Milk; legal.
10353..Milk; legal.
10354..Milk; legal.
10355..Milk; legal.
10356..Milk; legal.
10357..Milk; legal.
10358..Milk; legal.
10359..Milk; legal.
10360..Milk; legal.
10361..Milk; legal.
10362..Milk; legal.
10363..Milk; legal.
10364..Milk; legal.
10365..Milk; legal.
10366..Milk; legal.
10367..Milk; legal.
10368..Milk; legal.
10369..Milk; legal.
10370..Milk; legal.

Insp. No.; articles; results.

10371..Milk; legal.
10372..Milk; legal.
10373..Milk; legal.
10374..Milk; legal.
10375..Milk; legal.
10376..Milk; legal.
10377..Milk; legal.
10378..Milk; legal.
10379..Milk; legal.
10380..Milk; legal.
10381..Milk; legal.
10382..Milk; legal.
10383..Milk; legal.
10385..Milk; legal.
10384..Milk; legal.
10386..Milk; legal.
10387..Milk; legal.
10388..Milk; legal.
10389..Milk; legal.
10390..Milk; legal.
10391..Milk; legal.
10392..Milk; legal.
10393..Milk; legal.
10394..Milk; legal.
10395..Milk; legal.
10396..Milk; legal.
10397..Milk; legal.
10398..Milk; legal.
10399..Milk; legal.
10400..Milk; legal.
10401..Milk; legal.
10402..Milk; legal.
10403..Milk; legal.
10404..Milk; legal.
10405..Milk; legal.
10406..Milk; legal.
10407..Milk; legal.
10408..Milk; legal.
10409..Milk; legal.
10410..Milk; legal.
10411..Milk; legal.
10412..Milk; legal.
10413..Milk; legal.
10414..Milk; legal.
10415..Milk; legal.
10416A..Milk; legal.
10416B..Milk; legal.
10417..Milk; legal.
10418..Milk; legal.
10419..Milk; legal.
10420..Milk; legal.
10421..Milk; legal.
10422..Milk; legal.
10423A—Milk; legal.
10423B—Milk; legal.
10424..Milk; legal.
10425..Milk; legal.
10428..Salt; legal.
10427..Salt; legal.
10429..Salt; legal.
10430..Honey; legal.
10431..Honey; legal.
10432..Honey; legal.
10433..Hamburger; legal.
10434..Hamburger; legal.
10435..Hamburger; legal.
10436..Hamburger; legal.
10437..Hamburger; legal.
10438..Hamburger; cereal present.
10439..Hamburger; cereal present.
10440..Milk; legal.
10441..Evaporated milk; legal.
10442..Evaporated milk; legal.
10443..Evaporated milk; legal.
10444..Evaporated milk; legal.
10445..Slendabaum; legal.
10446..Slendabaum; legal.
40632..Evaporated milk; legal.
40639..Coffee; legal.
40639..Coffee; legal.

Insp. No.; articles; results.

40640..Coffee; legal.
40641..Coffee; legal.
40642..Coffee; legal.
40643..Milk; legal.
40644..Milk; legal.
40646..Salt; legal.
40647..Salt; legal.
40648..Salt; legal.
40649..Salt; legal.
40650..Salt; legal.
40651..Condensed milk; curdy.
40652..Condensed milk; curdy.
40653..Condensed milk; curdy.
40654..Condensed milk; curdy.
40655..Condensed milk; curdy.
40656..Hamburger; legal.
40657..Horse-radish; legal.
40658..Horse-radish; legal.
40659..Hamburger; legal.
40660..Meat trimmings; legal.
40661..Butter roll; legal.
40662..Cake do-nut; legal.
40663..Bread do-nut; legal.
40664..Cinnaman rolls; legal.
40665..Short cake; artificial color.
40666..Cookies; legal.
40667..Lemon cake; artificial color.
40668..Jelly roll; artificial color.
40669..Cookies; legal.
40670..Cinnamon roll; legal.
40671..Butterfly roll; artificial color.
40672..Pineapple roll; artificial color.
40673..Do-nut; legal.
40674..Cookies; legal.
40675..Lady fingers; legal.
40676..Lemon cake; legal.
40677..Twinkies; artificial color.
40678..Triple treat; legal.
40679..Eclair; legal.
40680..Sugar cooky; artificial color.
40681..Sugar moon; legal.
40682..Sugar cookies; legal.
40683..Maccaroons; legal.
40684..Butter roll; legal.
40685..Butter roll; legal.
40686..Cinnamon rolls; legal.
40687..Do-nut; legal.
40688..Short cake; legal.
40689..Drop cake; legal.
40690..Sugar twist; legal.
40694..Lady fingers; legal.
40695..Do-nut; legal.
40696..Pecan roll; legal.
40697..Do-nut; legal.
40698..Cinnamon roll; legal.
40699..Lemon cake; artificial color.
40691..Butter roll; artificial color.
40692..Pecan rolls; artificial color.
40693..Cup cake; artificial color.
40700..Jelly roll; artificial color.
40701..Butter roll; artificial color.
40702..Twist roll; artificial color.
40703..Sponge cake; legal.
40704..Lady fingers; legal.
40705..Do-nut; legal.
40706..Jelly bun; legal.
40707..Cinnamon roll; legal.
40708..Pineapple roll; legal.
40709..Coconut ring; legal.
40710..Do-nut; legal.
40711..Butter roll; legal.
40712..Cup cake; legal.
40713..Twist roll; legal.
51166..Evaporated milk; legal.
51167..Evaporated milk; legal.
51168..Evaporated milk; legal.
51169..Evaporated milk; legal.
51170..Evaporated milk; legal.
51171..Evaporated milk; legal.
51172..Evaporated milk; legal.

Insp. No.; articles; results.

51173..Evaporated milk; legal.
51174..Evaporated milk; legal.
51175..Evaporated milk; legal.
51176..Evaporated milk; legal.
51177..Evaporated milk; legal.
51178..Evaporated milk; legal.
51179..Evaporated milk; legal.
51180..Pop; legal.
51181..Pop; legal.
51182..Well water; no report to office.
51186..Dentifrice; legal.
51187..Dentifrice; legal.
51188..Dentifrice; legal.
51189..Milk; legal.
51190..Milk; legal.
51191..Milk; legal.
51192..Milk; legal.
55193..Milk; legal.
51194..Milk; legal.
51195..Milk; legal.
51196..Milk; legal.
51197..Milk; legal.
51198..Milk; legal.
51199..Milk; legal.
51201..Milk; legal.
51202..Milk; legal.
51203..Milk; legal.
51204..Milk; legal.
51205..Milk; legal.
51206..Milk; legal.
51207..Milk; legal.
51208..Milk; legal.
51209..Milk; legal.
51210..Milk; legal.
51211..Milk; legal.
51212..Milk; legal.
51213..Milk; legal.
51214..Milk; legal.
51215..Milk; legal.
51216..Milk; legal.
51217..Milk; legal.
51218..Hamburger; trace of sulphite.
51219..Milk; legal.
51220..Milk; legal.
51221..Milk; legal.
51222..Milk; legal.

Insp. No.; articles; results.

51223..Milk; legal.
51224..Milk; legal.
51225..Milk; legal.
51226..Milk; legal.
51227..Milk; legal.
51228..Milk; legal.
51229..Milk; legal.
51230..Milk; legal.
51231..Milk; legal.
51232..Milk; legal.
51233..Milk; legal.
51234..Milk; legal.
51235..Milk; legal.
51236..Milk; legal.
51237..Milk; legal.
51238..Milk; legal.
51239..Milk; legal.
51240..Milk; legal.
51241..Milk; legal.
51242..Milk; legal.
51243..Milk; legal.
51234..Honey; legal.
51235..Honey; legal.
51236..Tomato catsup; legal.
51237..Tomato catsup; legal.
51238..Tomato catsup; legal.
51239..Tomato catsup; legal.
51240..Tomato catsup; legal.
75172..Butter; legal.
75173..Butter; legal.
75174..Butter; broken in transit.
75186..Milk; no poison found.
75177..Water; no poison found.
75179..Lemon extract; illegal.
75180..Vanilla extract; illegal.
75181..Sodium salts; legal.
75181..Evelyn wave set; legal.
75182..Apples; legal.
75183..Milk; legal.
75184..Slendabaum; legal.
75185..Honey; illegal.
75186..Honey; illegal.
75187..Honey; illegal.
75188..Honey; illegal.
75189..Honey; illegal.

Food Laboratory, University of Kansas.

REPORT FOR THE BIENNIUM ENDING JUNE 30, 1932.

DEAR DOCTOR BROWN—The following report is submitted of the activities of the state food laboratory for the biennium ending June 30, 1932:

The work done in the state food laboratory at Lawrence during the two-year period July 1, 1930, to June 30, 1932, inclusive, consisted in the analysis of a total of 313 samples of foods. Of this number, 192 were found to be legal according to the standards of the state food laws of Kansas. The balance of 123 samples were found to be illegal; this figure represents a total of 39 per cent illegal samples. If the liquor and toxicological samples are subtracted and only the true food samples be considered there then remains a total of 233 food samples. Of this figure 59 or approximately 25 per cent were found to be illegal.

The appended table gives in detail the numbers and classes of the samples of foods submitted.

TABLE No. 29.—Numbers of food samples received with results of chemical analyses.

Kind of sample.	*Total.*	*Number of legal samples.*	*Number of illegal samples.*
Apples	8	7	1
Butter	15	9	6
Bakery products	55	41	14
Candy	1	1	0
Catsup	5	5	0
Cereals	3	3	0
Canned sweet corn	29	24	5
Coffee	10	10	0
Evaporated milk	13	13	0
Extracts	4	2	2
Honey	14	6	8
Meats	2	2	0
Milk and cream	33	17	16
Near beer	17	14	3
Pickles	1	1	0
Table salt	8	8	0
Soda pop	6	5	1
Vinegar and pickles	3	2	1
Wheat	4	4	0
Liquor samples	60	0	60
Toxicological work	22	18	4
Totals	313	192	123

Discussion of the major items in above tabulation.

APPLES. These samples were tested for arsenical spray residues and as will be noted only one sample was found to contain over the legal tolerance for arsenic.

BUTTER. Of the 17 samples of butter submitted 8 were found to be illegal. Of these 8 samples 6 were found to have added coconut oil. The other two illegal samples were substandard in having an excess of water.

BAKERY PRODUCTS. All of the bakery products consisted of sweet rolls and buns. These were tested for added artificial color. Of the 55 samples submitted 14 were found to contain added yellow color to simulate egg color or

contained artificial coal tar dyes which came from the jelly or jam used in making jelly rolls. None of the dyes found were other than permitted colors.

Canned Sweet Corn. Of the 29 samples of sweet corn submitted 5 were found to contain added field corn. The amount of added field corn varied between 10 and 50 per cent.

Coffee. The coffee samples were analyzed for foreign materials such as chicory and cereals. The samples were found to be uniformly pure in these respects, the collection including many of the cheaper brands of sacked coffee.

Evaporated Milk. The samples of evaporated milk were representative of the more highly advertised and also the cheaper brands. These were analyzed for total solids, fat, milk sugar, preservatives and tin salts. None of the samples were found substandard; in fact many of the samples were found to be of uniformly higher quality than demanded by the state and federal food laws.

Extracts. Two of the extracts examined were found to be illegal. One of the samples allegedly a pure lemon extract contained no lemon oil. The other sample, a vanilla extract, was found to be an artificial extract substandard in vanillin.

Honey. Of the fourteen samples of honey submitted 8 were found to contain added glucose.

Milk and Cream. Four of the 33 samples submitted were found to be substandard as to fat content. The laboratory coöperated with local health authorities in the neighborhood of Kansas City, Kan., in the detection of quantities of milk which was being sold as raw milk when in reality it had been heat treated or pasteurized. Of the 29 samples so examined 12 were found to be pasteurized. The results of the examination lead to the stopping of the practice.

Near Beer. Out of 17 near-beer samples analyzed only 3 were found to contain caffeine.

Table Salt. These samples of salt were tested for potassium iodide content in order to check the claims on the labeling. All of the samples were found to be up to the standards claimed on the label.

Wheat. The laboratory does not make a practice of testing wheat samples for protein. However, during the past year the laboratory gave service in this respect to local wheat growers in four emergency cases.

Liquor Samples and Toxicological Work. In accordance with past policy the laboratory has coöperated with state and county law enforcement and health officials in doing such analytical work that comes up in connection with their official duties. In the past year this work in connection with liquor analysis has been in a certain sense mandatory due to certain recent legislation which compels the coöperation of the state educational institutions with law enforcement officials.

In order to expedite matters the laboratory has, whenever possible, done such toxicological work as has been brought in by state officials. This particular type of laboratory work is probably more arduous than any other analytical work and has placed a considerable burden on the laboratory. How-

ever, the chemist in charge is glad to carry on such work where a real service can be performed and where there is no question of the satisfaction of a curious whim on the part of the investigating parties.

Personnel of the Laboratory. During three months in the summer of each year there is one chemist in charge on part-time salary. During the remaining nine months of 1930-'31, in addition to the chemist, there were added to the staff a half-time and a quarter-time assistant both of whom were also engaged in graduate work in chemistry.

During the year 1931-'32 the staff was reduced to a chemist in charge on three-quarter time and an assistant on half time. At the same time the maintenance budget was reduced 20 per cent.

For the coming year the assistant time has been reduced about 25 per cent with a corresponding reduction in salary in addition to a reduction of ten per cent in the salary of the chemist in charge. The maintenance budget for the laboratory has also been reduced sixty-six and two-thirds per cent. These reductions have been made in accordance with the general budgetary reduction policy of the University.

It is fully recognized that such reductions are necessary but at the same time it must be borne in mind that along with such decreases there will inevitably go a decrease in the amount of service which the laboratory can render. It is extremely possible that the laboratory will soon find itself unable to carry on any of the work in the toxicological field and liquor analysis. Nevertheless the personnel is prepared to carry on the work in a spirit of service until budgetary conditions render further work in this field impossible.

Respectfully submitted,

Henry Werner, *Chemist.*

Drug Laboratory, University of Kansas.

Report for the Biennium Ending June 30, 1932.

Dear Doctor Brown—The following report is submitted for the drug laboratory for the biennium ending June 30, 1932.

The personnel of the drug laboratory is as follows: L. D. Havenhill, director; L. L. Boughton, analyst; C. M. Sterling, microscopist.

Lab. No.	*Insp. No.*	
8219	75073	Lucile Wiggins, Fort Scott. Sample of Epsom salts suspected of containing strychnine. It was found to contain none.
8225	75114	Dr. Earle G. Brown, Topeka. Denicotinized cigars. Found to contain 0.84 per cent of nicotine alkaloid. Checked against Wm. Penns, which were found to contain 1.3 per cent of nicotine alkaloid.
8228	75151	Inspector Dalton. Fluid extract of ginger, U. S. P. Satisfied U. S. P. requirement for alcohol content. Pharmacopœia makes no other standard requirement for the fluid extract.
8229	75152	Dr. L. E. Mock, St. John. Honey. Believed to have been doped with poison.
8233	75176	C. B. Gray, Wichita. Milk. Suspected poison. None found.
8234	75177	C. B. Gray, Wichita. Water. Suspected poison. Found to be free of poison.
8235	75181	Dr. T. R. Conklin, Abilene. Evelyn wave set. Sample consisted largely of acacia. Markedly rancid due to free fatty acid. Apparently contained no other medicament.
8236	75181	Colwell Drug Co., Belleville. Unknown sodium salts. Found to be sodium sulphate, U. S. P.

Lab. No.	*Insp. No.*	
8238	75183	Mrs. W. L. Daugherty, Colby. Milk. Analysis: Total ash, 0.61 per cent. No magnesium salts, no heavy metals, no alkaloids, no croton oil, no preservatives.
8239	75184	Inspector Dalton. Slendabalm. Quantity of material insufficient.
8244	75192	Inspector Dalton. Wyesa, Indian diabetic compound. Sample broken and contents lost.
8245	10445	Inspector Reddy. Slendabalm. Identical with Lab. Nos. 8239 and 8246.
8246	10446	Inspector Reddy. Slendabalm. Essentially a 35 per cent solution of $MgSO_4 . 7 H_2O$.
8248	7029	Inspector Woolman. Wyesa, Indian diabetic compound. Chemical examination showed nothing. Pharmacological tests were also carried out.

Respectfully submitted, L. D. HAVENHILL, *Director.*

Food Laboratory, Kansas State College, Manhattan.

REPORT FOR THE BIENNIUM ENDING JUNE 30, 1932.

DEAR DOCTOR BROWN—The following report of the work of the food laboratory at Kansas State College, Manhattan, is submitted for the biennium ending June 30, 1932:

Analyses for State Board of Health:

	1930-'31.	*1931-'32.*
Milk	116	168
Butter	65	0
Apples	1	0
Soda water	16	0
Horse-radish	0	2
Hamburger	0	11

During the biennium, 1930-1932, the State Food Laboratory at Manhattan, Kan., analyzed 379 samples of food products of which 349 were milk and butter. Two surveys were conducted in the state during this time; one on the quality of country butter and the other on the quality of milk.

The State Board of Health coöperating with the U. S. D. A. and the apple growers of Northeastern Kansas established a temporary laboratory in the high school building at Troy, Kan., for the analyses of arsenic residue on apples and to assist the packers whenever possible in the proper operation of their apple washing machines. During the months of September and October, 1931, 181 samples of apples were analyzed. Respectfully submitted,

H. H. KING, *Chemist.*

DIVISION OF SANITATION.

Report for the Biennium Ending June 30, 1932.

Dear Doctor Brown—In the allocation of the various duties in the field of public health assigned to the State Board of Health the principal responsibility of this division is the safeguarding of the quality of water furnished the public by means of the municipal supplies now serving the towns and cities in which 51.5 per cent of the population of the state reside. Of this population totaling 969,307, approximately one-half are served by water supplies having their source in the surface waters of the state that require chemical treatment in order to be potable.

While this division is organized and operates primarily to provide general supervision by inspection and laboratory control of public municipal supplies we have not been unmindful of the public health problems of the semipublic and private water supplies. However, due to the fact that the principal support of the division is from fees paid by municipalities for the supervision of the public supplies, it follows that no comprehensive program of laboratory control or field inspection may be definitely planned until some means is provided for financing this phase of the work.

During the spring of 1932, 47 counties were visited and 161 roadside water supplies inspected and analyzed. From the results of this and previous surveys it is our opinion that much educational and regulatory work needs to be done to improve these semipublic water supplies. Little or no attention has been given in Kansas to the inspection of private water supplies except where especially interested parties are willing to pay for the analysis. The field of rural sanitation offers a great opportunity for public health development in Kansas. The construction of sewers and public water works very effectively sanitates that portion of the cities which are covered by these improvements. There always remain, however, the outer fringes of all cities and the large rural areas, comprising nearly half the population of the state, which are not benefited by the water and sewer utilities.

There has been a creditable reduction during the past 20 years in deaths from diarrhea and enteritis among children less than two years of age. However, there is need for extensive work in the field of rural sanitation to further reduce this particular cause of preventable death. Active programs and educational campaigns for the proper disposal of wastes and the protection of small water supplies should be included in any recommended course to this end. Such a program would employ the services of sanitary engineers who would coöperate with the various county health officers in problems of rural sanitation. Many states have made much progress through this collaborating service and many of the principal county health departments provide for a sanitary engineer on the staff.

At the present time the division is coöperating with the full-time county health departments by giving laboratory service for the analysis of samples

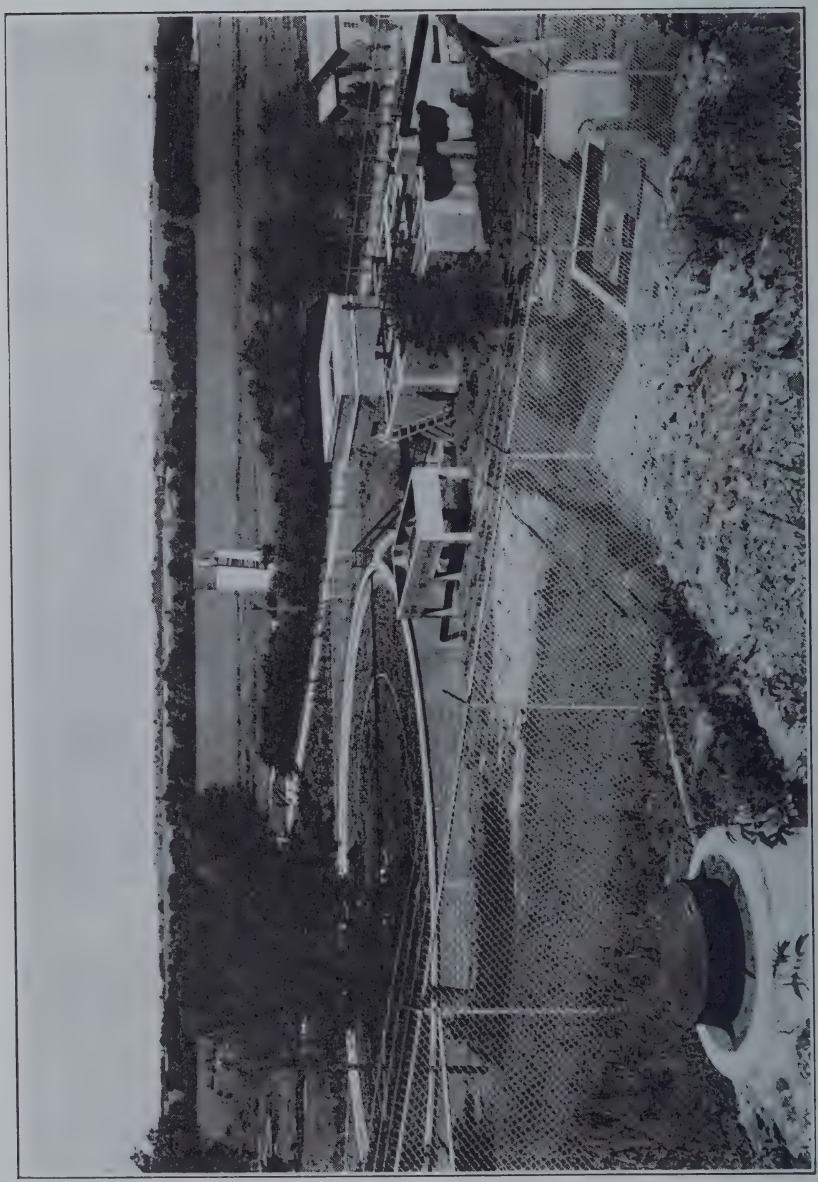

FIG. 25.—Sewage treatment plant, State Training School, Winfield.

collected from semipublic roadside supplies. Coöperation is also being given the Division of Food and Drugs by providing laboratory service for similar samples collected by the inspectors of that division.

Routine inspections have been made of all public water supplies as required by regulation. Due to limited assistance, it was not possible to complete operating tests at all of the surface water treatment plants. The instruction given operators of water treatment plants at the annual three-day school held at the University has furnished them with a source of information that has to a large extent removed the need for the individual instruction at the plant such as was given by the engineer in charge of plant operation tests.

One of the most important activities undertaken by this division is the attempt to control stream pollution due to domestic and industrial sewage. From 1907 to 1927 the responsibility of this board was limited to stream pollution control in order to abate conditions detrimental to the public health. In 1927 the authority of the board was extended to include stream pollution problems of interest from the standpoint of conditions detrimental to animal and aquatic life. In order to properly carry out the provisions of the 1927 amendment to the water and sewage law, provision should be made for a comprehensive sanitary survey of several of our more polluted watersheds. Such surveys might very properly be coördinated with the work of the State Fish and Game Commission.

Until funds are provided for this work surveys can be undertaken only where local conditions give rise to complaints or where the polluted condition of the stream is made evident by the quality of water reaching a surface water supply intake.

Among the industrial waste disposal problems that of salt-water disposal from producing oil wells continues to be the most troublesome. The subject of sewage treatment and its relation to the problem of river pollution is discussed elsewhere in this report.

The increasing realization of the responsibility of a municipality to provide for the proper treatment of sewage wastes is reflected by the number of cities that have undertaken major improvements during this biennium.

New systems of sewerage with treatment plants have been completed or are under construction at Elkhart, Satanta, Brewster, Tribune, Canton and La Crosse.

In order to abate local nuisances primary treatment plants have been constructed at Dodge City and Abilene. These plants provide for preaeration, sedimentation and separate sludge digestion. Complete treatment was recommended but will not be required providing partial treatment eliminates the cause for complaint. At Humboldt, Columbus and McPherson, modern separate sludge digestion plants complete with trickling filters with revolving distributors have been constructed to replace antiquated septic tanks.

This division in coöperation with the state architect designed a modern plant for the State Training School at Winfield. This plant consists of an Imhoff tank, trickling filters with revolving distributor, and final humus tanks. (See Fig. 25.) Operating results, as indicated by a 24 hour composite sample, show a 97 per cent reduction in the 5 day B. O. D. of the sewage with a nitrate content in the effluent of 5.7 p. p. m.

FIG. 26.—Municipal water-purification plant, Neodesha, Kan.

Topeka has completed an intercepting sewer parallel to the Kansas river and pumps the major portion of the sewage to the East Side treatment plant. This plant was placed in operation during 1931 and consists of treatment for the removal of grit and screenings, followed by plain sedimentation and separate sludge digestion. Chlorination was contemplated as secondary treatment before discharge into the Kansas river but has not as yet been installed. At the present time the sewage from approximately 15,000 population is as yet untreated. The construction of a West Side plant to provide treatment for the remaining population is contemplated.

Wichita has made good progress in the construction of sewage treatment works and will have primary treatment installed by the fall of 1932. The primary treatment will consist of screening, grit removal, preaeration, sedimentation and separate sludge digestion. The engineer's report as approved by the board provides for the construction of activated sludge treatment to complete the installation.

Consideration has been given to the present unsatisfactory sewage disposal conditions at Herington, Osage City, Hays and Coffeyville and improvements are being considered by these cities.

WATER SUPPLIES.

New ground water supplies have been constructed at Arlington, Brewster, Grainfield, Johnson City, Leoti, Collyer, Moscow, Bloom and Galva.

New impounded supplies have been constructed at Olathe, Augusta and Lyndon. During the year 1931 a serious water shortage occurred at Pleasanton due to an inadequate impounded supply. An increase in impounded storage has been recommended.

Modern water softening plants have been completed at Iola and Neodesha.

Note should be made of the rapid progress being made in the purification field in developing methods for producing not only a safe water but a softened and pleasant tasting water as well. At the present time the science of water treatment is far in advance of the qualifications of the average nontechnical operator. The failure of municipalities to provide at least one technically trained operator makes it difficult, if not impossible, to get the type of laboratory control of operation that is necessary for the utilization of the treatment methods required in the production of a palatable water. The product of a water treatment plant is dependent, as regards quality, not only on the plant, but also on the operator. With the aid of liquid chlorine almost any water may be made safe; yet there is danger that some operators will be content to stop with a bacteriologically safe water and forget that potability is a proper factor to consider.

The modern method of water softening and treatment can be illustrated by the description of the process at Neodesha. (See Fig. 26.) The water coming from Fall river is aerated and mixed with calcium hydrate. Enough hydrate is used to absorb all the carbon dioxide in the bicarbonates and change magnesium salts to hydrates. This will remove calcium as the carbonate and magnesium as the hydrate, the latter acting as a coagulant and making the use of filter alum unnecessary. Any remaining causticity resulting from the lime treatment is removed by recarbonation with carbon dioxide. This is produced

by burning gas and scrubbing the fumes through a water spray before it is blown through the water from pipe grids in the bottom of the mixing basins. After filtration the water receives a final dosage of chlorine. In case odors occur in the water, due either to algæ or aftergrowths in the mains, it will be possible to control them by the use of chlorine and ammonia, the latter being added either as the gas or as the sulphate salt. By adding approximately one fourth as much ammonia as chlorine it is possible to produce chloramine which is equally satisfactory for water disinfection and does not produce objectionable chlorine compound tastes.

At the present time unfiltered surface water is being supplied at Atchison, Leavenworth, Fort Scott and Sedan. An untreated surface water is being supplied for fire protection at La Harpe. We believe that while these cities are producing for the most part a safe water from the standpoint of bacterial pollution, due to the use of chlorine, the failure to provide filtration is a serious sanitary defect.

The filtration plants at Council Grove and El Dorado are in a bad state of repair and in both cases it has been recommended that the plants be reconstructed.

WATER RECORDS FOR 1931.

For the past several years the Division of Sanitation of the State Board of Health has tabulated the results of bacteriological analysis of samples examined in the water laboratory from the various city supplies of Kansas. The results of these tabulations have been followed with a great deal of interest by waterworks men and the public in general, and the improvement from year to year in the quality of the various city supplies as indicated by these tabulations is most gratifying.

It is to be pointed out that the recommended bacteriological requirements of the U. S. P. H. S. for a safe drinking water is a high standard, and any city whose supply meets the standard may well be proud of its waterworks utility. Those cities which are listed as meeting the recommended requirements of the United States Public Health Service are eligible to use standard highway markers indicating a safe water supply to the traveling public. These markers are made available to the cities of Kansas by the State Board of Health in cooperation with the State Highway Department.

The following surface supplies meet the recommended bacteriological requirements of the U. S. P. H. S. for 1931:

Altoona.	Erie.	Longton.	Ottawa.
Atchison.	Eureka.	Lyndon.	Paola.
Augusta.	Fredonia.	Marion.	Parsons.
Burlingame.	Garnett.	Marysville.	Phillipsburg.
Caney.	Herington.	Moline.	Pleasanton.
Chanute.	Horton.	Moran.	Smith Center.
Cherryvale.	Humboldt.	Mound City.	Topeka.
Coffeyville.	Independence.	Neodesha.	Troy.
Colony.	Iola.	Olathe.	Washington.
El Dorado.	Kansas City.	Osage City.	Yates Center.
Elk City.	Lawrence.	Osawatomie.	
Emporia.	Leavenworth.	Oswego.	

GROUND WATER RECORD.

The ground-water list includes all cities having ground water supplies which have perfect records of analyses or meet the recommended U. S. P. H. S. bacteriological standards. It includes both treated and untreated ground-water supplies.

The records are based on samples analyzed in the water and sewage laboratory at Lawrence. There is considerable variation in the number of samples analyzed from each city since supplies of proven bacteriological quality are checked only at regular intervals, while others are checked more frequently.

The city of Atwood has an unusual record of eleven consecutive years without contamination showing in any sample analyzed by the water laboratory.

The tabulation this year shows that 98 ground-water supplies have perfect records of bacteriological analyses for the year. This is an increase of 8 over the record for 1930. The total number of ground-water supplies meeting the recommended bacteriological requirements of the U. S. P. H. S. for 1931 is 139. This is a slight decrease over the 1930 list which included 143 cities.

The following ground-water supplies of Kansas meet the bacteriological requirements of the U. S. P. H. Service Standards for 1931 and have consecutive yearly records for perfect analyses:

	Yrs.		Yrs.
Atwood	11	Onaga	2
Cimarron	9	Prairie View	2
Moundridge	9	Randall	2
Mulvane	8	Rolla	2
Wakefield	7	Satanta	2
Clay Center	7	Simpson	2
Hope	6	Sylvan Grove	2
Lewis	5	Valley Center	2
Lyons	5	Westmoreland	2
Sabetha	5	Abilene	1
Colby	4	Arlington	1
Conway Springs	4	Ashland	1
Garden City	4	Attica	1
Greensburg	4	Aurora	1
Kanorado	4	Belleville	1
Lindsborg	4	Bloom	1
Marquette	4	Bunker Hill	1
Riley	4	Cheney	1
Weir City	4	Clifton	1
Clearwater	3	Dighton	1
Concordia	3	Dodge City	1
Englewood	3	Ellis	1
Ness City	3	Enterprise	1
Oxford	3	Franklin	1
Scott City	3	Goodland	1
Stockton	3	Hanover	1
Treece	3	Harper	1
Belpre	2	Haviland	1
Bison	2	Hoxie	1
Burrton	2	Irving	1
Canton	2	Jennings	1
Coldwater	2	Jewell City	1
Ellinwood	2	Kanopolis	1
Ellsworth	2	Kingman	1
Florence	2	LaCygne	1
Ogden	2	Larned	1

	Yrs.		Yrs.
Liberal	1	Palmer	1
Lincoln	1	Plains	1
McCracken	1	Pratt	1
McCune	1	Republic	1
McDonald	1	Robinson	1
Mahaska	1	St. John	1
Manchester	1	St. Marys	1
Milford	1	Solomon	1
Montezuma	1	Tribune	1
Moscow	1	Utica	1
Newton	1	Wakeeney	1
Oakley	1	Waterville	1
Otis	1	Winfield	1

Additional ground-water supplies which meet the U. S. P. H. Service Standards for 1931 are as follows:

Almena.	Croweburg.	Leoti.	Salina.
Anthony.	Galena.	Mulberry.	Seneca.
Argonia.	Hesston.	Manhattan.	Sharon Springs.
Arma.	Hiawatha.	Medicine Lodge.	Stafford.
Barnes.	Highland.	Nickerson.	Sterling.
Baxter Springs.	Hillsboro.	Peru.	Strong City.
Beloit.	Hoisington.	Plainville.	Tonganoxie.
Buhler.	Hutchinson.	Protection.	Toronto.
Burns.	Kismet.	Randolph.	Udall.
Cawker City.	Lebanon.	Ransom.	Ulysses.
Cherokee.			

Number of ground-water supplies with perfect records, by years: Year 1928, 60; year 1929, 65; year 1930, 90; year 1931, 98.

Number of ground-water supplies meeting U. S. P. H. Service Bacteriological Standards, by years: Year 1928, 120; year 1929, 97; year 1930, 143; year 1931, 139.

Total number of supplies (ground and surface) meeting U. S. P. H. Service Bacteriological Standards, by years: Year 1928, 160; year 1929, 141; year 1930, 190; year 1931, 185.

CROSS-CONNECTIONS.

Through the routine inspection of cross-connections and the analysis and inspection of private water supplies, where it is desired to maintain a physical cross-connection between a private supply and a municipal supply, it has been possible to materially reduce the number of physical connections since this work was started several years ago.

SPECIAL INVESTIGATIONS.

Two special investigations have been conducted by this division during the biennium. One has had to do with the study of mottled enamel, particularly with reference to the serious difficulty with mottled enamel at Chetopa, Kan. The subject of mottled enamel is being discussed in this report under a separate heading.

The other investigation has had to do with a study of water sterilization equipment of hospital operating rooms. The results of this study, which included the data obtained from inspections of 52 hospitals, are included as a separate report by Assistant Engineer R. E. Lawrence.

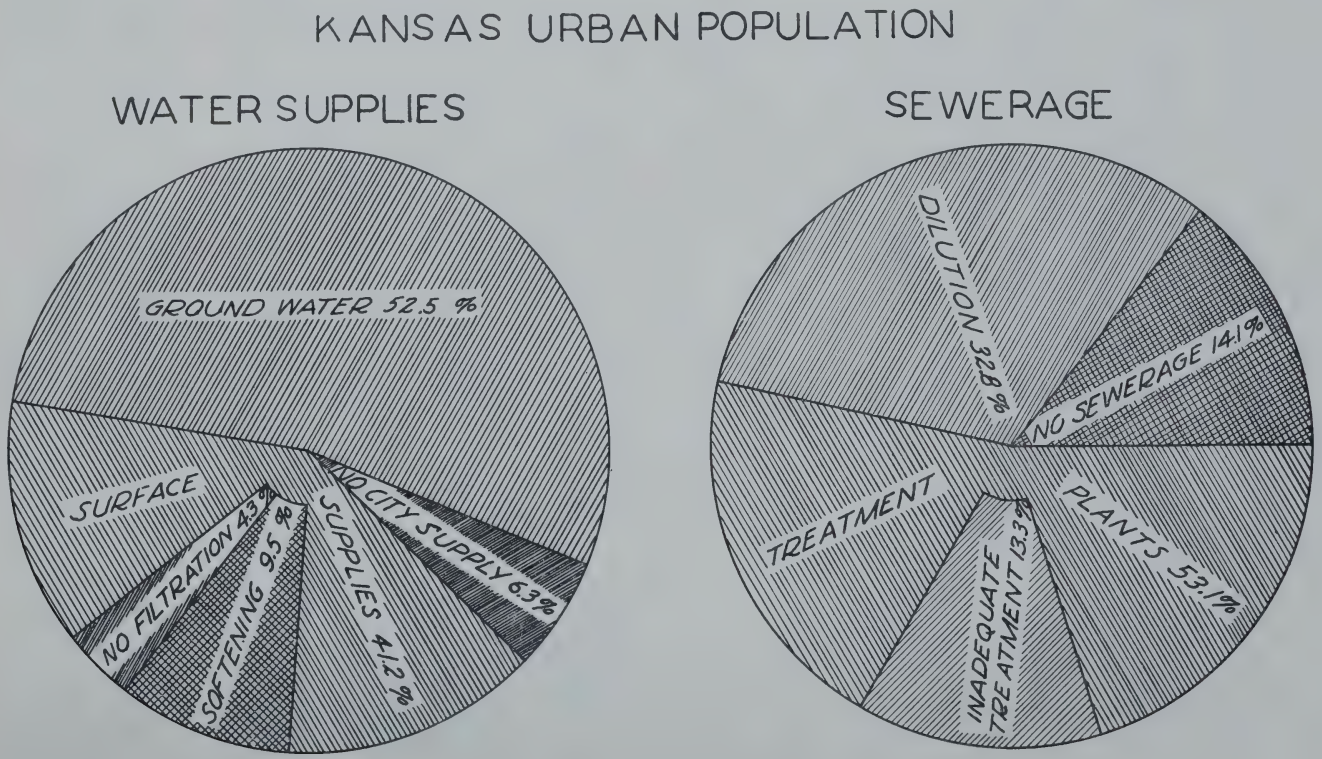

FIG. 27.—Per cent of urban population with water and sewerage utilities.

SWIMMING POOLS.

The division has continued to act as a bureau of information to those interested in swimming pool construction. A general lack of knowledge as to the essential requirements of a sanitary swimming pool makes it desirable to include with this report some discussion of the fundamental requirements of good swimming pool sanitation.

PERSONNEL.

Aside from part-time student help in the laboratory there has been but slight change in the personnel during the biennium. Assistant Engineer R. W. Kehr successfully passed the examinations held for a commission in the U. S. P. H. S. as assistant engineer and resigned June 1, 1931, to accept that position. The vacancy was filled by the employment of Mr. Charles C. Dills, who for a year and a half prior to his graduation in June, 1931, was employed as student assistant in the water laboratory.

Mr. Earnest Boyce was given leave of absence from October 1, 1931, to July 1, 1932, to accept a Rockefeller Foundation Scholarship for graduate study in engineering. During this period R. E. Lawrence was appointed as acting chief engineer.

A very creditable amount of work has been done during the period covered by this report, work that could be accomplished only with the excellent spirit of coöperation that has existed among the members of the department.

FINANCIAL STATEMENT.

Financial support for the Division of Sanitation is derived from the following sources:

1. Salary and maintenance fund for engineering service:
   - *a.* From Engineering School for teaching sanitary engineering subjects in the civil engineering course.
   - *b.* University state service fund.
2. From the sanitary fund appropriated to the State Board of Health for expenses of work undertaken under the water and sewage law.
3. Money from fees collected by the division for analysis work under authority of sections 65-156 to 65-158, Revised Statutes of 1923.

The recent 25 per cent reduction of funds appropriated to the University is reflected in the division through a 10 per cent reduction in salary of all personnel, the elimination of some part-time help in the laboratory and the cancellation of the sanitary engineering maintenance fund.

FINANCIAL STATEMENT, 1930-'31.

RECEIPTS.

*Salary and maintenance—sanitary engineering	$7,400.00
Fund No. 9	3,000.00
Fees	15,545.70
Total	$25,945.70

* Includes salaries paid by the University for teaching sanitary engineering subjects.

EXPENDITURES.

*Salary and maintenance—sanitary engineering	$7,400.00
Fund No. 9	2,989.65
Equipment and expense	3,266.13
Express	213.80
Salaries—laboratory	11,904.29
Total	$25,773.87

This statement does not take into account the credit balance June 30, 1930, of $5,227.72.

FINANCIAL STATEMENT, 1931-'32.

RECEIPTS.

*Salary and maintenance—sanitary engineering	$6,100.00
Fund No. 9	3,000.00
Fees	15,458.67
Total	$24,558.67

EXPENDITURES.

*Salary and maintenance—sanitary engineering	$6,100.00
Fund No. 9	2,999.83
Equipment and expense	3,150.28
Express	178.11
†Salaries—laboratory	12,878.00

This statement does not take into account the credit balance June 30, 1931, of $5,389.20.

MAIL, TELEPHONE, TELEGRAPH.

	In.	*Out.*
Letters	10,783	25,875
Cards	274	6,617
Advertisements	1,675	....
Books, bulletins, etc.	1,230	....
Packages	10,195	9,501
Water ratings	....	228
School programs	....	906
School proceedings	....	675
Telegrams	34	26
Telephone, local	998	574
Telephone, long distance	362	165
	25,551	44,567

SUMMARY.

Field inspections and conferences	1,518
Permits issued	90
Analyses completed	26,542
Licenses issued	572

Field inspections and conferences:

Water supplies	838
Sewers and sewage disposal	299
Railroad supplies	21
Bottled waters	43
Cross connections	51
Ice	22
Mausoleums	11
Hospitals	48
Roadside	69
Specials	116
Total	1,518

* Includes salaries paid by the University for teaching sanitary engineering subjects.

† Includes $1,000 transferred from the laboratory reserve to the University salary fund to apply on engineers' salaries for 1931-'32.

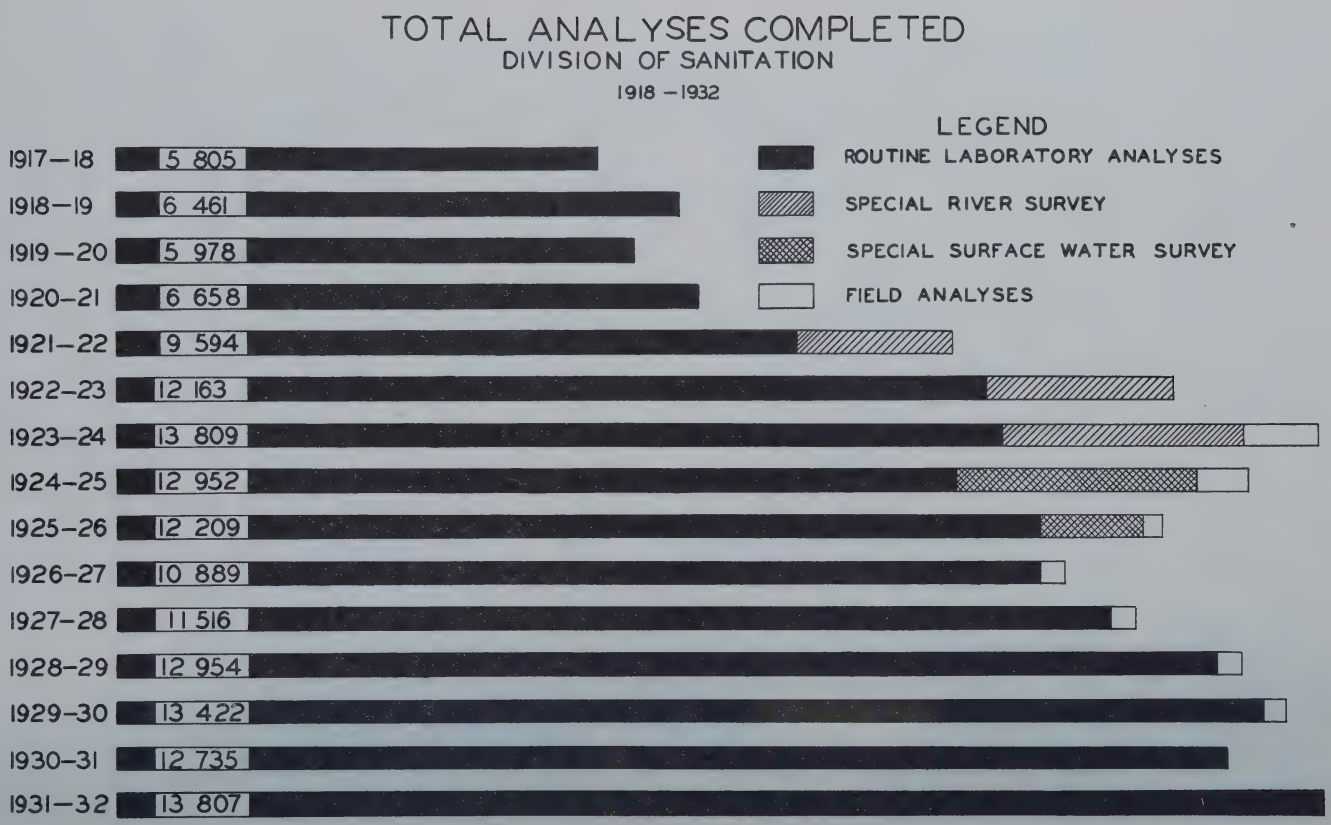

FIG. 28.—Work of state water laboratory, University of Kansas.

ANALYSES COMPLETED IN THE LABORATORY FOR THE YEARS 1930-'31 AND 1931-'32.

	Bacteriological.		Chemical.		Miscellaneous.	
	1930-'31.	1931-'32.	1930-'31.	1931-'32.	1930-'31.	1931-'32.
City supplies	10,375	11,696	339	343	.....	.....
Public-health supplies	814	679	.....	.....	.....	.....
Bottled waters	219	162	44	35	.....	.....
Railroad supplies	55	54	.....	.....	.....	.....
Ice	183	199	.....	.....	.....	.....
Ice supplies	26	12	.....	.....	.....	.....
Cross connections	14	97	.....	.....	.....	.....
Miscellaneous	2	.....	33	23	.....	.....
Sand	.....	.....	.....	.....	13	2
Chlorides	.....	.....	.....	.....	371	357
Iron	.....	.....	.....	.....	34	.....
Roadside supplies	208	139	.....	.....	.....	.....
Boiler scale	.....	.....	.....	.....	.....	1
Sewage	.....	.....	.....	.....	5	.....
Fluorire	.....	.....	.....	.....	.....	8
Totals....(Grand total, 26,542)	11,896	13,038	416	401	423	368

Plans or preliminary reports have been received for new work at the following points:

Brewster: New well.
Colby: Sewers.
Canton: Sewers.
Collyer: Water supply.
Dodge City: Beacon Hill sewer extension.
Dodge City: South side sewers.
Dodge City: Sewage disposal.
Downs: New wells.
Emporia: Sewer extensions.
Fort Scott: Private mausoleum.
Frankfort: New well.
Hamilton: New well.
Holton: New well.
Humboldt: Sewage disposal.
Hutchinson: Sewer extension.
Hutchinson: New well.
Kanorado: New well.
Kensington: New well.
Kismet: Water supply.
Larned: New wells.
Leroy: Water supply.
Lincoln: New well.
Lindsborg: Sewer extension.
McPherson: Sewer extension.
McPherson: Sewage treatment.
Moundridge: Sewer system.
Moundridge: Sewer extension.
Ottawa: Sewer extension.
Preston: New well.
Rexford: New well.
Russell: Sewer extension.
Salina: Sewage disposal improvements.
Salina: New well.
Spearville: New well.
Solomon: New well.
Strong City: Water improvements.
Topeka: Private mausoleum.
Turner: Water supply, school district 8
Victoria: New well.
Wamego: New well.
Wakeeney: Sewage treatment.
Winona: New wells.

PERMITS ISSUED FOR NEW WORK.

Colby: Sewers.
Canton: Sewers.
Collyer: Water supply.
Dodge City: Sewer extension.
Dodge City: Sewage disposal.
Douglass: New well.
Downs: New wells.
Emporia: Sewer extension.
Eskridge: Public mausoleum.
Fort Scott: Private mausoleum.
Frankfort: New well.
Holton: New well.
Humboldt: Sewage disposal.
Hutchinson: Sewer extension.
Hutchinson: New well.
Kanorado: New well.
Kismet: Water supply.
Larned: New wells.
Lindsborg: Sewer extension.
McPherson: Sewage treatment.
Moundridge: Sewer system.
Norcatur: New well.
Oberlin: New well.
Ottawa: Sewer extension.
Parsons: Private mausoleum.
Preston: New well.
Rexford: New well.
Russell: Sewer extension.
Salina: New well.
Solomon: New well.
Spearville: New well.
Victoria: New well.
Wakeeney: Sewage treatment.
Wamego: New well.
Winona: New wells.

CERTIFICATES TO BOTTLED WATER COMPANIES.

Chanute	A. W. Shaffer.
Chanute	Watson Stewart.
Coffeyville	Fitzpatrick & Ball (Eureka Water Co.).
Coffeyville	Shile Soft Water Springs.
Coffeyville	Whistle Bottling Co.
Cunningham	Homer Kelly (1931-'32 only).
Dearing	Major Harden.
Fall River	Charley C. Blakley.
Fort Scott	H. J. Wagner.
Geuda Springs	L. A. Foster (1931-'32 only).
Hutchinson	Hutchinson Ice Co.
Independence	Crystal Ice & Fuel Co.
Iola	American Service Co. (1930-'31 only).
Kansas City, Mo.	Eades Water Co.
Lawrence	McNish Bottling Co.
Manitou, Colo.	Manitou Mineral Water Co.
Muncie	Walter Coffelt.
Muncie	J. F. Speaker (1930-'31 only).
Muncie	Jeff Thurman.
Ottawa	Ottawa Transfer & Coal Co. (1930-'31 only).
Parsons	Coca Cola Bottling Works.
Parsons	Rockheart Mineral Water Co. (1930-'31 only).
Sabetha	Sycamore Mineral Springs.
Salina	Dr. Pepper Bottling Works.
S. Poland, Maine	Hiram Ricker & Sons.
Topeka	Capital City Bottling Co. (1930-'31 only).
Topeka	Topeka Pure Water Co.
Valley Center	I. V. Burnham.
Waconda Springs	Waconda Sanatorium.
Waukesha, Wis.	White Rock Mineral Springs Co.
Wichita	Conway Springs Water Co.
Wichita	Distilled & Aerated Water Co.
Wichita	Electrified Water Co.
Wichita	Hilltop Mineral Water Co.
Wichita	Ne-Hi Bottling Co.
Wichita	Ozarka Water Co.

PERMITS FOR CROSS-CONNECTED SUPPLIES.

Goff	Hanna Poultry & Egg Co. (1930-'31 only).
Great Bend	Armour Creameries (1930-'31 only).
Great Bend	McMullens Laundry (1930-'31 only).
Great Bend	Walnut Creek Mill (1930-'31 only).
Hutchinson	American Steam Laundry (1930-'31 only).
St. John	St. John Mills (1930-'31 only).
Wichita	Dunn-Ostertag Packing Co. (1930-'31 only).
Wichita	Fairview Apartments.
Wichita	DeCoursey Creamery Co. (1931-'32 only).
Wichita	Allen W. Hinkel.
Wichita	Kansas Independent Laundry.
Wichita	Kansas Milling Co.
Wichita	Red Star Milling Co.
Wichita	St. Johns Academy.
Wichita	Snyder Ice Cream Co. (1930-'31 only).
Wichita	Western Creamery Co.
Wichita	Wichita City Hospital.
Wichita	Wichita Creamery Co.
Wichita	Union Stock Yard Company.
Kansas City	Procter & Gamble (1931-'32 only).

LICENSES ISSUED TO ICE COMPANIES.

Abilene	Belle Springs Creamery Co. Manufactured.
Anthony	Western Ice & Util. Co. Manufactured.
Argentine	Railways Ice Co. Manufactured.
Arkansas City	National Ice & Service Co. Manufactured.
Arkansas City	Steffen Ice & Ice Cr. Co. Manufactured.
Armourdale	Railways Ice Co. Manufactured.
Arnold	Arnold Mercantile Co. Natural (1930 only).
Ash Grove	John Cairns. Natural (1930 only).
Ashland	Ashland Ice Co. Manufactured.
Atchison	Kansas Power & Light Co. Manufactured.
Atwood	Victor Piedalue. Manufactured.
Augusta	Western Util. Ice Co. Manufactured.
Baldwin	Thudium & Cooper. Manufactured.
Baxter Springs	Baxter Ice Co. Manufactured (1930 only).
Baxter Springs	Monarch Ice Mfg. Co. Manufactured (1930 only).
Belleville	Belleville Ice Plant. Manufactured.
Beloit	Geo. W. Duley & Son. Natural (1930 only).

Beloit	Mulberry Ice Co. Natural (1930 only).
Bird City	Bird City Ice Plant. Manufactured.
Blakeman	R. L. Cathcart. Natural (1930 only).
Blue Rapids	Blue Rapids Ice & C. S. Co. Manufactured.
Bonner Springs	Kansas Electric Power Co. Manufactured.
Buffalo	Buffalo Ice Co. Manufactured (1930 only).
Burlingame	Burlingame Ice Co. Manufactured.
Burr Oak	Burr Oak Mill. Manufactured.
Bushton	Southwest Utility Ice Co. Manufactured.
Caldwell	Hill and Anderson. Manufactured.
Caney	Inland Util. Co. Manufactured.
Canton	Canton Ice & C. S. Co. Manufactured.
Cedar	C. H. Campbell. Natural (1930 only).
Chanute	Kansas Utilities Co. Manufactured.
Cherryvale	Watkins Bros. Manufactured.
Chetopa	Chetopa Ice & Bott. Co. Manufactured.
Clay Center	Clay Center Ice Co. Manufactured.
Coldwater	Demuth Ice Co. Manufactured.
Columbus	Columbus Ice Co. Manufactured.
Coffeyville	Alpine Ice Co. Manufactured.
Coffeyville	Southwest Util. Ice Co. Manufactured.
Collyer	W. H. Berger Merc. Co. Manufactured.
Concordia	Concordia Ice & C. S. Co. Manufactured.
Conway Springs	Frantz Cream & Ice Co. Manufactured.
Cottonwood Falls	Inter-County Elec. Co. Manufactured.
Council Grove	Gilman Ice Co. Manufactured.
Cunningham	James C. Groves. Manufactured.
Dighton	Dighton Ice Plant. Manufactured.
Dodge City	Kansas Power Co. Manufactured.
Downs	Kansas Power Co. Manufactured.
Dunlap	Farmers Union Merc. Co. Natural (1930 only).
El Dorado	Southwest Utility Ice Co. Manufactured.
Elkhart	Elkhart Ice Co. Manufactured.
Elk City	Elk City Ice Co. Manufactured.
Ellis	Ellis Ice Co. Manufactured.
Ellsworth	Kansas Power Co. Manufactured.
Emporia	Emporia Ice & C. S. Co. Manufactured.
Erie	Crystal Ice Co. Manufactured.
Eskridge	Parmiter Bros. Natural (1930 only).
Eudora	H. Hagenbuch & Son. Manufactured.
Eureka	Kansas Elec. Power Co. Manufactured.
Fairbury, Neb.	Fairbury Service Co. Manufactured.
Fairview	B. P. McGinty. Natural (1930 only).
Florence	Home Ice & Supply Co. Manufactured.
Fort Scott	American Service Co. 2 plants. Manufactured.
Frankfort	Frankfort Ice & St. Co. Manufactured.
Fredonia	American Service Co. Manufactured (1930 only).
Frontenac	Menghini Bros. Manufactured.
Galena	Galena Ice Co. Manufactured.
Garden City	Garden City Ice Co. Manufactured.
Garnett	Garnett Ice & Milk Co. Manufactured.
Gaylord	Community Ice & Amusement Co. Manufactured.
Goodland	Goodland Ice & Coal Co. Manufactured.
Gove	E. H. Brown. Natural.
Great Bend	Southwest Util. Ice Co. Manufactured.
Halstead	A. H. Dettweiler. Manufactured.
Harlan	I. A. Nichols. Natural (1930 only).
Harper	Minton Creamery. Manufactured.
Hays	Golden Belt Creamery Co. Manufactured.
Herington	Herington Ice Co. Manufactured (1931 only).
Herndon	Andrew Unger. Manufactured.
Hiawatha	Kansas Power & Light Co. Manufactured.
Highland	Saunders Ice Co. Manufactured.
Hill City	Hill City Ice Co. Manufactured.
Hoisington	Prairie Icing Co. Manufactured.
Holton	Crystal Ice & St. Co. Manufactured.
Horton	W. G. Kelley. Natural (1930 only).
Howard	Howard Ice Co. Manufactured (1930 only).
Hoxie	Hoxie Ice Co. Manufactured.
Hunter	Lorenz W. Deiter, Jr. Natural (1930 only).
Hutchinson	Carey Salt Co. Manufactured.
Hutchinson	Hutchinson Ice Co. Manufactured.
Hutchinson	McArthur Packing Co. Manufactured.
Hutchinson	Union Ice Co. Manufactured.
Independence	Arctic Ice Co. Manufactured.
Independence	Crystal Ice & Fuel Co. Manufactured.
Iola	American Service Co. Manufactured.
Junction City	United Power Co. Manufactured.
Kansas City	Armour & Co. Manufactured.
Kansas City	City Ice Company. (3 plants.) Manufactured.
Kansas City	Midwest Ice & C. S. Co. Manufactured.

Kingman	Western Ice & Util. Co. Manufactured (1931 only).
Kirwin	I. H. Hickman. Natural.
La Harpe	La Harpe Ice Co. Manufactured.
Larned	Western Ice & Util. Co. Manufactured.
Lawrence	American Service Co. Manufactured.
Leavenworth	American Service Co. Manufactured.
Le Roy	Le Roy Ice Co. Manufactured.
Liberal	Kansas Power Co. Manufactured.
Lincoln	Cooper Ice Co. Manufactured.
Lindsborg	Lindsborg Ice Co. Manufactured.
Logan	Logan Auto Co. Natural (1930 only).
Louisville	H. M. Harrison. Natural (1930 only).
Lyndon	Lindsay & Gray. Manufactured (1931 only).
Lyons	Lyons Ice Co. Manufactured.
McDonald	C. L. Gustafson. Manufactured.
McFarland	Rock Island R. R. Natural.
McFarland	G. J. Mueller. Natural (1930 only).
McPherson	Inland Util. Co. Manufactured.
Madison	Madison Ice Co. Manufactured.
Manhattan	United Power & Light Co. Manufactured.
Manhattan	Home Ice Co. Manufactured (1930 only).
Marysville	Marysville Ice & C. S. Co. Manufactured.
Medicine Lodge	Medicine Lodge Ice Co. Manufactured.
Minneapolis	Jackman Roller Mills. Manufactured.
Moline	Chas. A. Spray. Manufactured.
Morland	John Jamison. Natural (1930 only).
Moundridge	Polar Ice Co. Manufactured.
Mount Hope	City Ice Plant. Manufactured.
Mulberry	Frank McKay. Manufactured.
Mulvane	Mulvane Ice Co. Manufactured (1931 only).
Neodesha	American Service Co. Manufactured.
Newton	Newton Ice Co. Manufactured.
Norton	Norton Ice Co. Manufactured.
Oak Hill	L. M. Cooney. Natural (1930 only).
Oakley	Prather Creamery Co. Manufactured.
Oberlin	Oberlin Ice Co. Manufactured.
Olathe	Kansas Power & Light Co. Manufactured.
Onaga	Kansas Power & Light Co. Manufactured.
Osage City	Osage Ice & Ice Cream Co. Manufactured (1931 only).
Osawatomie	Southwest Utility Co. Manufactured.
Osborne	Osborne Ice Co. Manufactured (1931 only).
Oswego	Citizens Ice Co. Manufactured.
Ottawa	B. D. Bennett. Manufactured.
Paola	Paola Crystal Ice Co. Manufactured.
Paradise	H. A. Houser. Natural (1930 only).
Parsons	American Service Co. Manufactured.
Parsons	Federal Ice Refrig. Co. Manufactured.
Peabody	United Power & Light Co. Manufactured.
Phillipsburg	Phillipsburg Ice Co. Manufactured.
Picher, Okla.	American Service Co. Manufactured.
Pittsburg	American Service Co. Manufactured.
Plainville	R. J. McClay. Manufactured.
Pleasanton	Pleasanton Ice Co. Manufactured.
Pratt	Western Ice & Util. Co. Manufactured.
Randolph	L. Anderson. Natural (1930 only).
Red Cloud, Neb.	Red Cloud Ice Co. Manufactured.
Russell	Russell Ice Co. Manufactured.
St. Francis	Orville Murren. Manufactured.
St. John	St. John Mills. Manufactured.
St. Joseph, Mo.	Artesian Ice & C. S. Co. Manufactured (1930 only).
Sabetha	Sabetha Ice Co. Manufactured.
Salina	Ashton Ice Service. Manufactured.
Salina	Kansas Ice & St. Co. (Western Ice & Util. Co.)
Scott City	Scott City Ice & St. Co. Manufactured.
Sedan	Inland Util. Co. Manufactured.
Sedgwick	Sedgwick Ice Plant. Manufactured (1930 only).
Selden	Karl's Cash Store. Natural (1930 only).
Seneca	Otto A. Kelm. Natural.
Sharon Springs	Sharon Springs Ice & C. S. Co. Manufactured.
Sublette	Demuth Ice Co. Manufactured.
Summerfield	Craven Grain Co. Natural (1930 only).
Superior, Neb.	G. R. Dodds Co. Manufactured.
Tonganoxie	Franklin Ice Cream Co. Manufactured.
Topeka	Beatrice Creamery Co. Manufactured.
Topeka	Mutual Ice & Storage Co. Manufactured.
Topeka	Railways Ice Co. Manufactured.
Topeka	Seymour Packing Co.
Topeka	Topeka Pure Milk Co. Manufactured (1930 only).
Trenton, Neb.	Trenton Ice Plant. Manufactured (1931 only).
Ulysses	Highland Util. Co. Manufactured.
Valley Falls	Meyer Milk Products Co. Manufactured.

Wamego	Wamego Seed & Elev. Co. Manufactured.
Washington	Kansas Power Co. Manufactured.
Waterville	W. R. Summers. Natural.
Webber	P. B. Taylor. Natural (1930 only).
Weir City	Union Ice & C. S. Co. Manufactured.
Wellington	Wellington Ice Co. Manufactured.
Wellsville	C. A. Smith Elec. Co. Manufactured.
White Cloud	P. E. Lear. Natural (1930 only).
Wichita	Crystal Ice & Fuel Co. Manufactured.
Wichita	Jacob Dold Packing Co. Manufactured.
Wichita	Independence Ice & C. S. Co. Manufactured.
Wichita	Peerless Ice & St. Co. Manufactured.
Wichita	Polar Ice Co. Manufactured.
Wichita	Steffen Ice & Ice Cr. Co. Manufactured.
Wichita	Wible Ice & C. S. Co. Manufactured.
Wichita	Wichita Ice & Stor. Co. Manufactured.
Williamsburg	D. Fogle Merc. Co. Natural (1930 only).
Wilson	Lambert Bros. Manufactured.
Winfield	S. W. Utility Co. Manufactured.
Woodruff	Hageman Bros. Natural (1930 only).
Woodston	Smithers & Hoar. Natural (1930 only).
Yates Center	American Service Co. Manufactured.

CERTIFICATES TO RAILROADS.

Abilene	Santa Fe. City supply.
Anthony	Santa Fe. City supply.
Arkansas City	Santa Fe. City supply.
Arkansas City	Missouri Pacific. City supply.
Arkansas City	Frisco. City supply.
Atchison	Missouri Pacific. City supply.
Atchison	Burlington. City supply.
Atchison	Santa Fe. City supply.
Atchison	Rock Island. City supply.
Augusta	Santa Fe. City supply.
Baxter Springs	Kansas, Okla. & Gulf. City supply.
Baxter Springs	Frisco. City supply.
Belleville	Rock Island. City supply.
Bonner Springs	K. C. K. V. & West. City supply.
Bucklin	Rock Island. City supply. Prohibited.
Caldwell	Rock Island. City supply (1931 only).
Cedarvale	Santa Fe. Shipped from Independence, 1930.
Cedarvale	Santa Fe. City supply. Provisional, 1931.
Chanute	Santa Fe. City supply.
Cherokee	Frisco. City supply. Prohibited, 1930. Approved, 1931.
Cherryvale	Frisco. City supply.
Coffeyville	Missouri Pacific. City supply.
Colby	Pickwick Greyhound Bus. City supply.
Concordia	Burlington. City supply.
Concordia	Missouri Pacific. City supply.
Concordia	Santa Fe. City supply.
Conway Springs	Missouri Pacific. City supply.
Council Grove	Mo. Pac. City supply. Approved, 1930. Prov., 1931.
Dodge City	Santa Fe. Railroad well.
Downs	Missouri Pacific. City supply.
Ellinwood	Santa Fe. City supply.
Ellis	Union Pacific. City supply.
Ellsworth	Frisco. City supply.
Ellsworth	Pickwick Greyhound Bus. City supply (1930 only).
Emporia	Santa Fe. City supply.
Englewood	Santa Fe. Railroad supply.
Florence	Santa Fe. City supply (1930 only).
Fort Scott	Frisco. City supply.
Fort Scott	Missouri Pacific. City supply.
Garden City	Santa Fe. Railroad supply.
Goodland	Rock Island. Railroad supply. Prohibited (1931 only).
Great Bend	Santa Fe. City supply.
Herington	Rock Island. City supply.
Highland	Union Pacific. City supply (1930 only).
Hoisington	Mo. Pac. City supply. Prohibited, 1930. Appr., 1931.
Horton	Rock Island. City supply.
Hutchinson	Ark. Valley Int. City supply.
Hutchinson	Missouri Pacific. City supply.
Hutchinson	Santa Fe. City supply (1931 only).
Independence	Santa Fe. City supply.
Junction City	M. K. & T. City supply.
Junction City	Union Pacific. City supply.
Kanopolis	Missouri Pacific. City supply.
Kansas City	American Airways. City supply (1931 only).
Kansas City	Braniff Airways. City supply (1931 only).
Kansas City	Kansas City Terminal. City supply.

Kansas City	Missouri Pacific. City supply (1930 only).
Kansas City	Santa Fe. City supply.
Kansas City	Union Pacific. City supply.
Kinsley	Santa Fe. City supply.
Kiowa	Santa Fe. City supply (1931 only).
Larned	Missouri Pacific. City supply.
Larned	Santa Fe. City supply.
Lawrence	K. C. K. V. & West. City supply.
Lawrence	Union Pacific. City supply.
Leavenworth	Burlington. City supply.
Leavenworth	Missouri Pacific. City supply.
Leavenworth	Rock Island. City supply.
Leavenworth	Santa Fe. City supply (1930 only).
Leavenworth	Union Pacific. City supply.
Liberal	R. I. Railroad supply. Appr., 1930. Prohibited, 1931.
McCracken	Missouri Pacific. City supply (1930 only).
McFarland	Rock Island. Railroad well.
Madison	Mo. Pac. City supply. Prov., 1930. Prohibited, 1931.
Manhattan	Union Pacific. City supply.
Marysville	Union Pacific. City supply.
Miltonvale	Union Pacific. City supply. Prov., 1930. Appr., 1931.
Miltonvale	Santa Fe. City supply. Prov., 1930. Appr., 1931.
Moran	M. K. & T. City supply.
Moline	Santa Fe. Hauled from Independence city supply.
Neodesha	Frisco. City supply. Prov., 1930. Approved, 1931.
Newton	Missouri Pacific. City supply.
Newton	Arkansas Valley Int. City supply.
Newton	Santa Fe. City supply.
Oakley	Union Pacific. City supply.
Oberlin	Burlington. City supply.
Olathe	Frisco. City supply.
Osawatomie	Missouri Pacific. City supply.
Ottawa	Santa Fe. City supply.
Paola	M. K. & T. City supply (1930 only).
Paola	Frisco. City supply.
Parsons	M. K. & T. City supply.
Phillipsburg	Rock Island. City supply.
Pittsburg	K. C. Southern. City supply.
Pittsburg	Missouri Pacific. City supply.
Pittsburg	Frisco. City supply.
Plainville	Union Pacific. City supply (1931 only).
Pratt	Rock Island. City supply (1931 only).
Pratt	Santa Fe. City supply (1931 only).
St. John	Santa Fe. City supply.
Salina	Missouri Pacific. City supply.
Salina	Pickwick Greyhound Bus. City supply.
Salina	Rock Island. City supply.
Salina	Santa Fe. City supply.
Salina	Union Pacific. City supply.
Sand Creek	Santa Fe. Newton city supply.
Sharon Springs	Union Pacific. City supply.
Strong City	Santa Fe. City supply. Prohibited, 1930. Appr., 1931.
Topeka	Missouri Pacific. City supply.
Topeka	Rock Island. City supply.
Topeka	Santa Fe. City supply.
Topeka	Union Pacific. City supply.
Way	Santa Fe. Railroad supply.
Wellington	Santa Fe. City supply.
Wichita	Ark. Val. Int. City supply.
Wichita	Santa Fe. City supply.
Wichita	Rock Island. City supply.
Wichita	Midland Valley. City supply.
Wichita	Missouri Pacific. City supply.
Wichita	Frisco. City supply.
Wichita	National Air Transport. City supply.
Winfield	Frisco. City supply.
Winfield	Santa Fe. City supply.
Yates Center	Missouri Pacific. City supply.

A Study of Defects in Hospital Sterilization Practice.

Read at the seventy-fourth annual meeting of the Kansas Medical Society, May 3, 4 and 5, 1932, Kansas City, Kan.

R. E. Lawrence, B. S., Lawrence, Kan., acting chief engineer, Kansas State Board of Health.

Epidemics of post-operative infections have occurred from time to time in many of our principal hospitals. The outbreaks are usually explosive in character, and affect patients of all surgeons, and patients from all operating rooms simultaneously. Years of investigation of such outbreaks by a committee of noted surgeons, during which records of many thousands of cases were carefully studied, yielded little information as to the actual cause of infections.

Recently, however, investigators, by approaching the problem from a slightly different angle, have made discoveries which promise to bring to light causes of outbreaks of operative wound infections which were previously unknown. All credit for these discoveries must go to the Chicago Health Department. The Chicago investigations, which coördinated surgical knowledge and engineering methods, were directed toward a study of the means by which hospital drinking and sterilized water supplies may become contaminated. The work was instigated by Dr. Arnold H. Kegel, formerly commissioner of health of the city of Chicago, and Mr. Joel I. Connolly, chief, bureau of sanitary engineering, and has been ably advanced under the direction of Dr. Herman N. Bundesen, present commissioner of health. The writer is indebted to Doctor Bundesen and the Chicago health department for much of the information contained in this paper.

CROSS-CONNECTIONS.

Cross connections in drinking water supplies have received the attention of public health engineers for a number of years. Any connection in piping which might permit the contamination of a safe water supply by a polluted water is readily recognized as a source of potential infection. Such connections may exist in industrial plants where the city supply is augmented by water from another source for fire protection or industrial uses. Connections to unsafe supplies are sometimes maintained by cities in order to provide additional fire protection in the event of a serious conflagration. Several serious epidemics of sickness have resulted when leaky or unclosed valves have permitted polluted water under a higher pressure to be pumped into the drinking water system. Many state departments of health now have regulations prohibiting the cross connection of a drinking water supply with a polluted water supply for any purpose.

By extending the study of cross connections it can be seen that a direct connection between sterilized and unsterilized water exists on most hospital water sterilizers. The sterilizer is filled with tap water which has been passed through the Berkfeld filter. The valve is closed and the water is carefully sterilized by passing live steam through a heating coil. The cold sterilizer is then cooled and the water is ready for use. If there is a slight leakage in the filling valve, tap water leaks into the tanks and mixes with the water which has been carefully sterilized. If the tap water is bacteriologically safe the increase in total count in the sterilized water may not, perhaps, be serious. If,

however, the water in the pipes has been dangerously contaminated through back siphonage from another fixture, the use of sterilized water thus contaminated may result in loss of life.

SIPHONAGE AND BACK DRAINAGE.

Siphonage or back drainage is possible from many plumbing fixtures having submerged inlets. Siphonage from waste pipes whereby the contents of the drain are drawn into the water system is also possible when fixtures are directly connected to waste pipes.

Connolly, in a published article, divides submerged inlets into two major groups. Group one includes all inlets which are constantly submerged beneath the surface of the fixture contents when the fixture is in normally good operating condition. Examples in this group are siphon jets in water-closet and urinal traps, instrument sterilizers, bell supply bath tubs, etc. Group two are those inlets which are not ordinarily submerged beneath the surface of the fixture contents, but which at times become submerged because of stoppage or carelessness in filling. Examples in this group are drinking fountains, lavatories and flushing rim openings in water closets.

The siphonage or back drainage of fixtures can occur when for any reason there is a partial vacuum in the supply pipe which is submerged at the fixture. Most of us have at sometime attempted to draw water from a faucet on an upper floor of a building when the pressure was low and have been compelled to wait until users on lower floors had closed enough valves to force the water to our level. As we opened the faucet we could hear air being sucked in to replace the partial vacuum in the pipe. This is exactly what takes place in the back drainage of fixtures, except that the inlet is submerged and when the valve is opened the contents of the fixture drain back into the pipes. When the water pressure comes on again the contents of the fixture may be found in drinking fountains or may leak slowly into the cold-water sterilizer. A partial vacuum in the supply pipe may be caused by the excessive use of water on lower floors, by insufficient pumping capacity during periods of peak consumption, heavy draughts from fire plugs in the vicinity, or breaks in the system requiring shutting off the supply while repairs are made.

The siphonage of traps in water-closet and urinal bowls which are equipped with self-closing valves actuated by the water pressure in the supply pipe, may be possible when the water inlet is submerged and when negative pressure in the supply line causes the valves to become self-opening. Improved types of flush valves are equipped with vacuum breakers and auxiliary check valves to prevent the siphonage of toilet fixtures.

Drains to water sterilizers and stills are frequently connected to waste pipes with an unbroken section of pipe. This practice is dangerous since the condensation of steam to produce distilled water or sterilized water causes a partial vacuum which may suck the contents of the drain into the distilled or sterilized water tank. Direct connections to drains also make it possible for water in the drain to back up against the valves in the discharge line in event there is a stoppage in the drain pipe. A case was recently reported where the exhaust from a large pressure cooker in the kitchen of a city hospital

which was directly connected to a drain, permitted the contents of the drain to be siphoned into the cooker when it was filled with cooling soup.

Figure 29 is a sectional drawing showing how water is supplied to the various floors in a small hospital. The operating room and sterilizers are on the top floor, as is customary, and water is supplied to the instrument and utensil sterilizers through inlets at the bottom of the units. To illustrate how back drainage and siphonage may result seriously, let us assume the following conditions:

For any one of a number of reasons the pressure in water main "A" becomes low and the water in the vertical riser pipe "B" drops below the level of the third floor. The instrument sterilizer on the upper floor is standing half full of water and the attendant has just placed some pus basins, scalpels

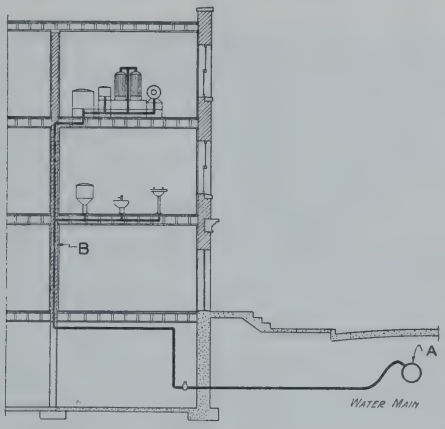

FIG. 29.

Showing how water is supplied to the various floors of a small hospital.

and forceps, which were used in performing an operation, into the sterilizer. The filling connection at the bottom is opened to admit fresh water so as to fully cover the instruments. The water, however, is not forthcoming and instead the dangerously infected material in the sterilizer drains into the water pipes. Let us assume that the pressure in water main A continues to drop, the water in the vertical riser B falls below the second floor, and that conditions are such that the contents of the trap in the water closet on the second floor are siphoned into riser pipe B. Pipe B now contains infected material from the instrument sterilizer and the contents from the trap of the water closet, which may be infected with typhoid or other disease organisms. The drinking-water supply is now contaminated, and when the pressure comes on again this infected water is available at drinking fountains or may find its way slowly into the sterilizer tanks through leakage in the valves.

IMPROVEMENT IN DESIGN OF STERILIZING EQUIPMENT.

Figure 30 shows a battery of sterilizers similar to installations which are to be found in most hospitals. This is the type of equipment which was sold before the possibilities of contamination through cross-connections and siphonage and back drainage from fixtures were generally recognized. The water inlets to the instrument and utensil sterilizers are at the bottom of the fixtures and are therefore submerged inlets. The piping supplying water to the sterilizer tanks is not equipped with telltale fittings which would indicate and make impossible a slow leakage of tap water into the sterilizer tanks when the valves are closed. Usually the entire battery is connected to a common drain which in turn is direct-connected to a waste pipe. If a distilled water tank is included in the battery, the partial vacuum created in the condensa-

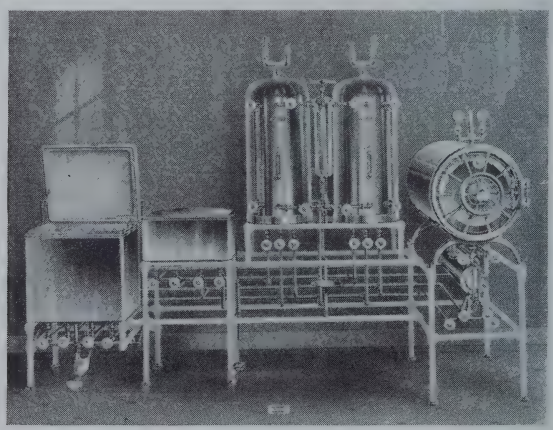

FIG. 30.

Battery of sterilizers similar to installations found in most hospitals.

tion of steam may suck the contents of the drain into the water tank, or a stoppage in the drain may cause the water in the waste pipe to back up against the valves in the discharge lines from the sterilizer tanks.

Following the Chicago studies, manufacturers have made a number of revolutionary changes in the design of hospital sterilizing equipment. These changes have resulted in the elimination of the defects which have been heretofore discussed.

Figure 31 is a manufacturer's drawing showing how possible contamination from cross-connections of water supply and waste systems is prevented in water sterilizers. The sanitary air-gap waste fittings on the tank drains prevent possible back siphonage by permitting air to enter the drain lines. The telltale or by-pass from the filter to the water-waste line prevents water from seeping into the sterilizer tanks in event the water supply valve is leaking or not tightly closed. A sanitary air gap waste fitting is also provided on this line.

Figure 32 shows an instrument sterilizer with a sanitary fitting on the waste line and an air-break fitting on the water supply line. The water

supply line is brought in at an elevation above the sterilizer and the water fill bleeder permits possible leaking through the valve to be discharged direct to the drain. Any possibility of back drainage from this fixture is eliminated.

ELIMINATION OF DEFECTS IN EXISTING INSTALLATIONS.

Since most of the sterilizing equipment in hospitals was installed before the recent modifications in design, defects exist which permit possible contamination from cross-connections, submerged inlets, and siphonage. Submerged inlets on instrument sterilizers may be eliminated by bringing the water-supply pipe up above the rim of the sterilizer and filling from the top

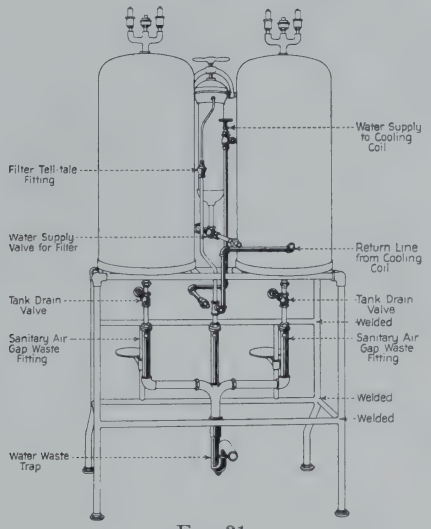

FIG. 31.

Water sterilizers showing filter tell-tale fitting and sanitary air-gap waste fitting.
—*Courtesy Scanlan-Morris Company.*

by means of a swing faucet. By placing a valve on the water-supply line supplying the filter and tapping a small telltale line into the filter, the danger of seepage into the sterilizer tanks by leakage through the supply valve is eliminated. If there is a direct connection of the waste line to drain it should be severed and a funnel inserted below the entrance of the last fixture. The drain may then be discharged into the funnel with a gap between the top of the funnel and the bottom of the drain line. In many cases it may be possible to insert the sanitary air gap fittings of the manufacturer of the equipment.

For complete safety all submerged inlets and direct connections to drains on all plumbing fixtures must be eliminated. This would mean that all toilet flush valves must be of an approved check and siphon breaker type, and that inlets on lavatories, bathtubs, and drinking fountains be placed above the rim. Therapeutic tubs and other fixtures which require submerged inlets should be provided with some adequate device to prevent the formation of a vacuum in the supply pipe.

DEFECTS IN STERILIZATION PRACTICE.

During the past few months the State Board of Health has made a study of water sterilizing equipment and sterilization practice in a typical group of Kansas hospitals. A total of 54 institutions, representing a cross section of the larger and smaller hospitals of the state, were surveyed to determine to what extent the defects, which have been outlined, exist.

In four of the smaller hospitals visited the sterilizing equipment consisted of small instrument sterilizers which were filled and drained by hand. These installations were of course not subject to defects in piping. The sterilized

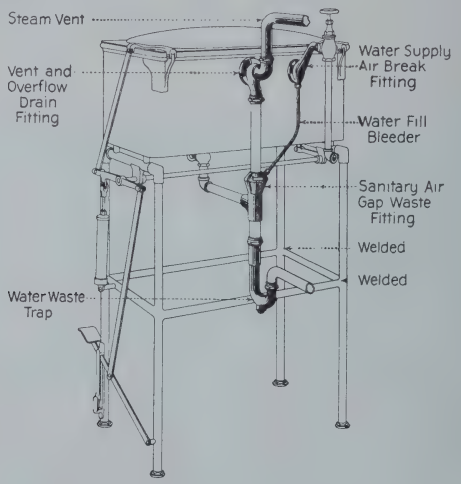

FIG. 32.

Instrument sterilizer showing water supply air break fitting, water fill bleeder, and sanitary air gap waste fitting.
—*Courtesy Scanlan-Morris Company.*

water in these institutions was provided by boiling in separate containers. In 46 hospitals defects in the piping of the sterilizing equipment were found. The defects consisted of cross-connections on the water sterilizers, submerged inlets on instrument sterilizers, or direct connection of drains to waste pipes. Only four of the institutions visited were equipped with newly designed sterilizers in which piping defects are eliminated.

Water samples for bacteriological analysis were collected from sterilizers at twenty institutions. These samples were mailed to the water laboratory for analysis, so that there was some delay between time of collection and analysis which might possibly affect the total count. It is common practice, however, to store sterilized water in the sterilizers for several hours or days before using, so it is felt that the total bacterial count of the samples as received at the laboratory closely approximates the normal condition of the water as it is used from the sterilizers.

A total of 44 samples were collected from water sterilizers and analyzed in the water laboratory. In no instance was a sample of water found to be absolutely sterile. All samples were free from organisms of the *Coli ærogenes* group, however, total counts ranged from 1 to 10,000 per cubic centimeter with a good percentage showing a total count over 100 bacteria per c.c.

Many samples with comparatively high counts were obtained from sterilizers where the utmost care was exercised on the part of the attendants to obtain a sterile water. This immediately suggests the possibility of leakage through a cross connection on the fixture, or failure to obtain an absolutely sterile water by the ordinary methods of sterilization. Further investigation along this line might indicate the need for longer periods of heating, or possibly multiple heating to destroy the more resistant spores.

In general there was a noticeable lack of care on the part of attendants in carrying through the sterilization procedure. A number of defects were noted, the principal ones being as follows:

1. *Water level sight glasses:* There is an almost universal failure on the part of sterilizer attendants to drain the water level sight glasses during sterilization. Tap water enters the glasses as the tank is filled but is not heated to sterilizing temperature during the sterilization process. If the water in these tubes is not drained off when the tank is heated it drains back into the sterilizer when water is drawn from the tank and may result in the contamination of all the water in the sterilizer.

2. *Berkefeld filters:* Very few hospitals make it a regular practice to clean the Berkefeld filter and dry sterilize it. In some cases the filter was found to have been in operation for over a year without attention.

3. *Cotton plug filters for air inlet valves:* Many instances were found where the air inlet valves at the top of the sterilizer tanks were not provided with cotton plug filters, making it possible for dust and other foreign matter to get into the sterilized water supply.

4. *Lack of training:* The survey indicated that the average nurse in charge of water sterilization has not received complete training or supervision in sterilization procedure. There is need for more specific training of attendants in the operation of sterilization equipment and schooling in sterilization procedure.

SUMMARY.

It has been the purpose of this paper to point out some of the defects commonly found in hospital sterilization practice. Piping connections on sterilizing equipment, which make possible the contamination of sterilized water supplies with dangerous germs, should be eliminated. The most common of these defects are submerged inlets on instrument sterilizers, cross connections on water sterilizers, and the direct connection of drains to waste pipes. These are easily found and can be removed with little difficulty. Complete protection of the house water supply from possible contamination through siphonage or back drainage requires the elimination or protection of submerged inlets on all plumbing fixtures.

There is need for more specific training of attendants in the operation of sterilizing equipment and in sterilization procedure. Bacteriological analyses of water samples from hospital sterilizers suggest the need of more careful heating in water sterilization. Daily plate counts on samples from water sterilizers in all hospitals would be desirable.

REFERENCES.

Joel I. Connolly, Municipal Sanitation, Vol. 1, No. 1, Jan. 1930, p. 22, and Vol. 1, No. 2, Feb. 1930, p. 83.

Joel I. Connolly, Water Works and Sewerage, Vol. LXXVII, No. 9, p. 309.

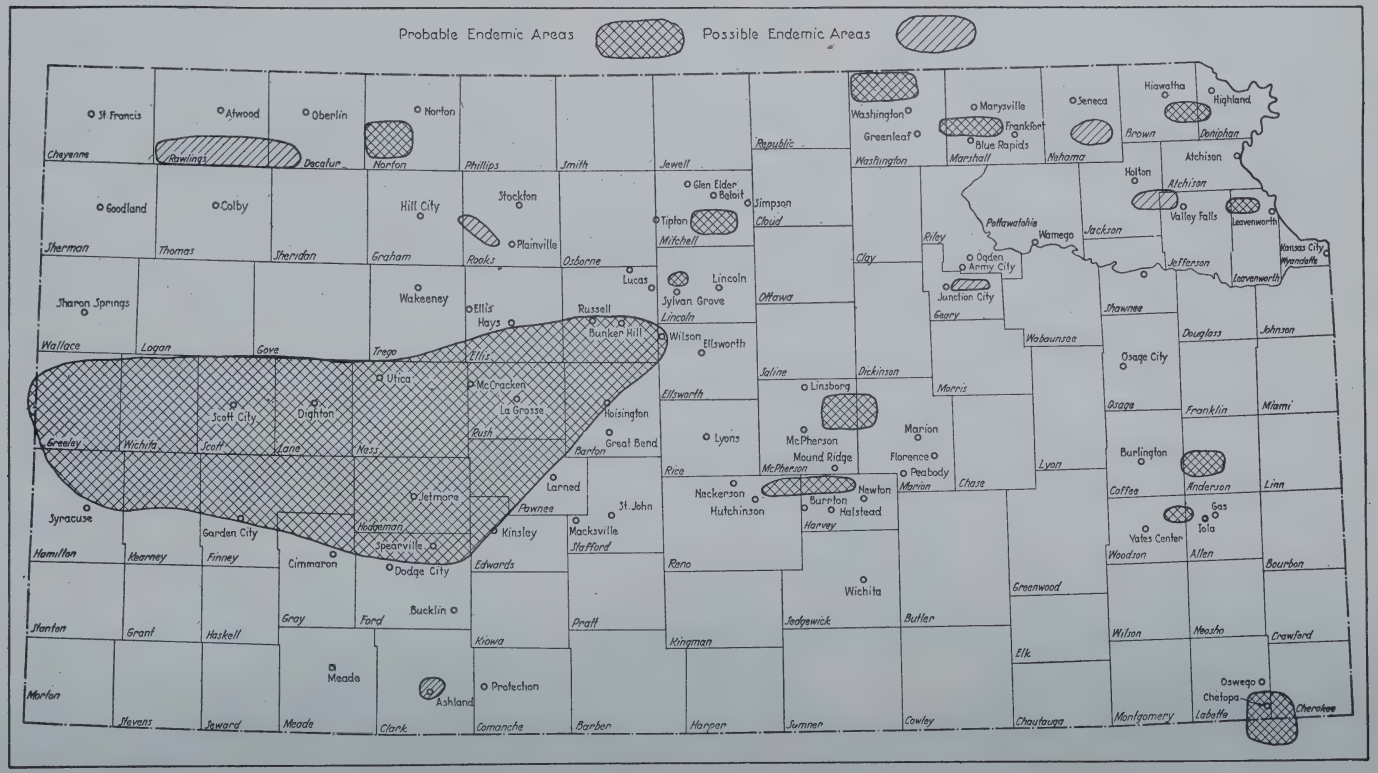

FIG. 33—Areas reporting mottled enamel (from dentists' questionnaire).

MOTTLED ENAMEL—A DENTAL DEFECT.

For the past four years this division has been conducting studies in Kansas of the occurrence of a dental defect known as mottled enamel and its possible relationship to the source of drinking-water supply. This relationship has been indicated by numerous papers by McKay, Black and others. The literature on mottled enamel as well as the situation with regard to it in Kansas have been thoroughly surveyed by R. W. Kehr, formerly of this department.

From a questionnaire addressed to the dentists of Kansas information was obtained regarding the areas where mottled enamel has been observed. This information has been indicated on a state map. Surveys have not been made to completely verify the areas indicated by the answers to the questionnaire. However, those living in the areas indicated may regard their water supplies with suspicion should mottled enamel be observed. (See Fig. 33.)

Mottled enamel is a tooth defect which first manifests itself by a chalky white spotted appearance of the enamel instead of the normal translucent appearance. This is noticeable as soon as the tooth is erupted into the mouth, but since the defective chalky white enamel is more liable to staining than the normal enamel discoloration soon occurs and the teeth may become disfigured with areas shading from buff to dark brown. The discoloration is, of course, much more readily detected by the average observer than the preliminary chalky appearance, and the dark brown areas are often described as the characteristic symptoms of the trouble, although the chalky whiteness is really the original defect. (See Figs. 34, 35 and 36.)

Mottled enamel was first described about 15 years ago and investigations since that time have disclosed it occurs in communities as widely scattered as Arizona, Idaho, North Dakota, and Arkansas, in this country, besides Italy, Spain, Holland, Argentine, North Africa, China and various other places. In every afflicted community it has been found the defect is associated with the common source of drinking water; practically 100 per cent of the children regularly drinking the water are affected, while none of their companions using water from another source have the defect. Investigations of community after community have confirmed the part played by the drinking water and have ruled out all other suspected factors such as malnutrition or childhood diseases.

Until less than a year ago it was not known what substance in the water was causing the defect, since it was not disclosed by ordinary methods of analysis. It is now well established the trouble is caused by the presence in the water of relatively small amounts of the chemical element fluorine.

The occurrence of fluorine in the water supplies of certain affected communities was first reported by H. V. Churchill of the Aluminum Company of America at a meeting of the American Chemical Society in the spring of 1931. Previous to this various workers had observed the deleterious effects of fluorine on the growth and well-being of experimental animals, the effects being mostly on the bones and teeth. The Smiths and Lantz at the University of Arizona reported June, 1931, that they had produced mottled enamel in white rats by the addition of a fluorine salt to the diet and had obtained the same result by using the concentrate from the water supply of a community in Arizona where mottled enamel was endemic.

FIG. 34.

FIG. 35.

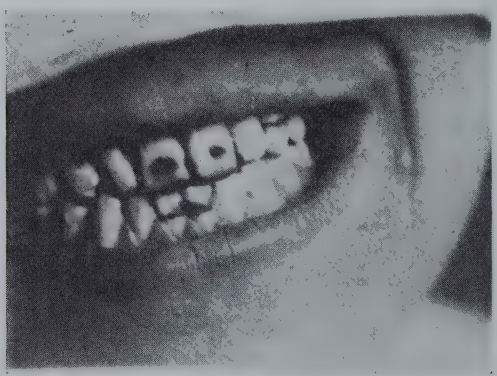

FIG. 36.

The fluorine exerts its effect only while the enamel is being formed and does not harm enamel which has once been normally laid down. Since the enamel of the temporary or baby teeth is formed before birth, it is rarely affected, but the enamel of the permanent teeth is formed during childhood and is subject to harm from fluorine-containing waters during this time. Since the enamel cannot repair itself, as do such structures as the bones and the skin, the injury, when once suffered, is a permanent one. On the other hand, if the enamel is formed in a normal manner in a community not afflicted with mottled enamel it is not subject to harm should the individual, after becoming an adult, use fluorine-containing water.

The damage to the enamel is so great that dental science has as yet found no way of repairing the harm. Present evidence indicates the affected teeth are no more liable to decay than are normal ones, but when a cavity occurs, it is very difficult for the dentist to make a filling hold properly on the defective enamel. Dentists find also that it is difficult to promote proper oral hygiene in afflicted communities as the children feel, erroneously of course, that their teeth are already so disfigured by the mottled enamel that mere brushing could help them little.

The only hope for mottled enamel control at present is in prevention rather than cure. Now that the cause is known it is possible to state with assurance that the defect can be completely prevented by changing to a water supply containing little or no fluorine. In an afflicted community this change should be made for every child who does not as yet have his complete set of permanent teeth and should include not only the water which the child drinks but also that used in cooking his food. If the enamel of some of the child's teeth has already been formed the change will benefit only those teeth whose enamel has not yet been laid down, but will not cure the ones already marred.

Further studies of the occurrence of mottled enamel are being made in the state water laboratory and information is being obtained as to the location and amount of fluorine in the ground water of the state.

SWIMMING POOL SANITATION.

Many excellent swimming pools in Kansas are being operated under managements that are fully informed as to the requirements of good sanitation. Also, there are many pools that have little to attract the bather who wishes to have a swim in clean water.

From the nature of the inquiries regarding swimming pool sanitation received by the department we must conclude there is a general public interest in having all public pools clean and sanitary, and failure to secure the desired results is due either to lack of available information as to how a pool should be constructed and operated or, more frequently, to a lack of adequate financing. In this brief review it is proposed to give some of the fundamental principles of pool sanitation. Further information can be obtained from the division of sanitation of the State Board of Health upon request.

The chief source of pollution of a clean pool is that introduced by the bather. No pool for public use should be operated as a gigantic bath tub. The pool is a place to enjoy aquatic sport and not a place for a cleansing bath.

The only way to prevent pollution from the bather's body is to require

that the bather be as clean as soap and water will make him before he enters the pool. If bathhouses were constructed and operated so that each bather could take a cleansing shower with warmed water and soap before dressing in a clean bathing suit much of the contamination that now enters a public pool could be prevented.

Well-designed bathhouses are constructed with provision for taking a bath before dressing in the bathing suit and with opportunity for those in charge to supervise the bathers entering the pool. The showers and dressing rooms should be so designed as to invite this necessary preliminary bath. Soap should be provided at least as a reminder that its use in the showers is desirable.

The heating of shower water is in most cases impractical and the use of cold water direct from wells or city mains is quite apt to cause one to avoid its use as much as possible. Some pools have very nicely overcome this difficulty by using the warmer pool water as a shower supply, the water being pumped by means of a small motor-driven centrifugal pump.

Obviously, toilet facilities should be ample and conveniently placed. The floors and walls of the bathhouse should be waterproof and the drainage adequate. Any duck boards used should be removable for cleaning and periodic exposure to the sun. The building should be well ventilated and lighted. In some cases it has been possible to design a bathhouse so that the most of the change rooms and shower compartments are not covered by a roof. If lockers are used, a number can be placed in each dressing room with a shower adjacent and by proper arrangement one shower compartment can be made to serve two or more dressing rooms.

With the most willing coöperation on the part of the pool patrons organic and bacterial pollution of the pool water is inevitable and provision must be made for its regular purification or change. If the pool is emptied and refilled at regular intervals there is, of course, a complete removal of the polluted water. In case there is a continuous inflow of new or repurified pool water with a consequent displacement of polluted water care should be given to the inlet and outlet design details in order that this displacement be as complete as possible. In case the water is recirculated and purified the processes used for treating surface water for municipal use can, with slight modification, be used and an excellent quality of water maintained.

In case chlorine is used as a disinfectant it is quite possible to maintain a residual amount which will destroy bacterial life introduced into the pool. By careful control with the use of a very simple color test with orthotolidine, that can be taught to any responsible operator, it is possible to maintain the residual chlorine between .2 and .5 parts per million, which gives the desired germicidal effect without the presence of the chlorine being noticeable to the bathers.

Where an ample supply of ground water is available the pumping of approximately 300 gallons of fresh water per bather into the pool will keep the water in good condition, provided chlorine is added as a disinfectant and the recommended residual maintained.

In planning the water purification part of a swimming pool the advice of an engineer familiar with water purification methods should be obtained.

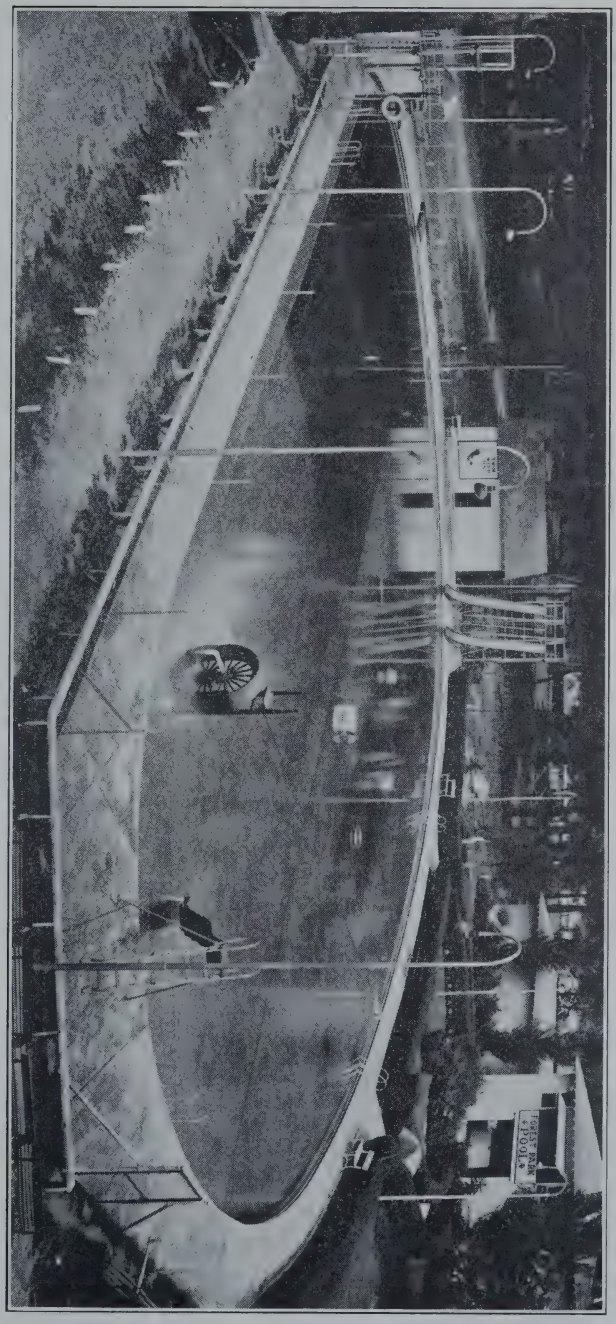

FIG. 37—Municipal swimming pool, Ottawa, Kan.

No pool can be kept sanitary unless it is constructed of waterproof material, preferably concrete. The walls should be smooth for ease in cleaning and painted a light color to increase visibility in the water. A clean pool should be clear enough for the bottom to be visible in six feet of water. Scum gutters should extend entirely around the pool and should have adequate drainage. The pool inclosure should be fenced and all the area within the fence covered with concrete draining away from the pool. Only those dressed for bathing should be allowed in the pool inclosure. For safety, no floor slopes in water less than six feet deep should be greater than one foot in twelve. These are but a few of the things that a prospective swimming pool owner or operator should consider if the pool is to be so operated that it will maintain its popularity and not offend as regards the lack of safety or sanitation.

Due to the limited authority granted to the state health department, the only regulatory action that can be taken in regard to swimming pools is to close those pools that become a public health nuisance. However, the department stands ready at any time to consult with and advise operators regarding pool sanitation hoping that education will do more than regulation in securing clean swimming pools.

IS YOUR WELL WATER SAFE?

In considering water supplies it is necessary in inhabited areas to consider surface water as being unsafe, since the source of pollution cannot always be controlled. Since all ground water has been at one time surface water, it follows that all water we use has at one time been at least exposed to this chance of contamination but that since this exposure it has passed through various ground strata and, depending on these geological formations, has been more or less satisfactorily filtered.

Diseases transmitted through the use of polluted water or the careless disposal of sewage wastes are for the most part diseases of the intestinal tract and the mode of infection, with a few exceptions, through the mouth with either food or drink.

Sewage wastes are dangerous primarily because they may contain living organisms of one form or another capable of creating disease, if by some means they are conveyed, no matter how indirectly, to the tissues of some susceptible person. The methods of conveyance of polluting material range from the more direct contact responsible for the spread of hookworm in the south, to the more indirect underground pollution from some leeching cesspool to the water-bearing stratum supplying a well. It follows that the effective prevention of infectious diseases of the intestinal group is dependent first, on the disposal of all human wastes capable of creating infection if pathogenic germs are present, and second, on the obtaining of food and drink from sources that are safe from any chance of contaminating contact.

Any sanitary survey should determine so far as possible the type of filtering material that overlies the water-bearing formation, and further, should locate all places where pollution from the ground surface might find access to the water-bearing stratum without effective filtering. If this overlying material is fairly fine-grained and of uniform texture for a reasonable depth there exists a natural filter that will very satisfactorily remove any trace of bacterial

pollution that might have been collected before the rainwater started its percolation through the soil. Not only will it remove the bacterial pollution by the filtering action, but the bacterial flora of the surface soil will very effectively oxidize any organic matter in solution that otherwise might penetrate deeper with the water of percolation.

Most surface soil can be considered good filtering material unless it contains a large amount of gravel or other coarse-grained material or ledge rock. Of these formations, ledge rock is the most uncertain. Fissures are apt to form, particularly in limestone, and permit the free unfiltered passage of water from the surface to the ground water level or permit its horizontal travel from some surface source to appear as a spring at some outcrop. Most of our large flow springs are of this type and frequently are seriously contaminated.

Perhaps the most common source of pollution in the ordinary well is to be found at the well itself, and in the examination of a polluted well and its surroundings, one should eliminate any chance of surface water entering the well before looking further for the cause of the trouble. The importance of a tight curb, preferably of concrete, has received a great deal of emphasis and most of this work has been satisfactory. Some carelessness can be found in the forming of a tight or water-proof joint at the pump base.

More attention needs to be given to the construction of the upper portions of the wall of the well and to the proper fitting of the curb to the top of the wall.

Any wall construction that permits water to enter the well above the water-bearing formation has the effect of reducing the effective depth of the soil through which the water filters. It is very important that the wall be tightly jointed to the curb and constructed water tight for a depth sufficient to insure the quality of the water by forcing it to find entrance to the well only after adequate filtering through the soil. It is also important during the construction of a well to be sure that the soil disturbed outside the wall of the well is carefully puddled back in place. A failure to compact this earth is apt to result in the formation of openings through the soil outside the wall through which water may pass. Because of the rough construction of a rock wall there is little chance that the earth is properly compacted about the wall and safety of the supply is secured only by careful attention to surface drainage. In the construction of drilled wells, there is usually an annular space between the casing and the hole drilled that is difficult to tightly close. It would be an excellent practice to place a concrete collar or floor around a well, sloping it slightly from the well or casing. This should be placed several feet below the surface and would serve as a cutoff for any surface water that might otherwise continue to find a downward passage along the wall.

The well supply should always be located so that surface drainage and underground water movement will be from the well toward the sources of possible pollution. As a general rule, the subsurface strata will slope or dip in the same general direction as does the surface, but sometimes the reverse is true. Under these conditions, outcropping rock at a lower elevation than the well can carry water in a direction not indicated by the surface slope and be the cause of pollution.

SEWAGE TREATMENT AND STREAM SANITATION.

Sewage disposal, once the problem of the individual and later of the family group, has now become the problem of not only the community but in some cases the problem of a number of communities or cities occupying one watershed.

Since the building of a system of sewerage for a city so easily solved some of the most serious problems confronting the sanitarian, it was quite proper that during the past years emphasis should be placed on this one problem, the removal of wastes from a community. It was true then as now that nuisances were being produced but methods for satisfactory treatment of sewage were not well developed and the nuisance was created not so much because it was not objected to but rather because no cure was known. Fortunately, most of our larger cities were, and are, located on rivers or bodies of water affording a volume of water for diluting the sewage to a point where an acute nuisance was not produced.

Because of this necessity to use the stream for sewage disposal there has developed the theory that a city, because of its location on a river bank, had in some way acquired the right to use the stream for sewage disposal, at least so long as such use did not detract from the value of the stream to others who might have other and possibly conflicting uses for the stream. Frequently, there were conflicting usages but there seemed to be little chance for redress for those whose claims conflicted with the serious need of the cities at that time.

We might accept the theory that by usage a city has in some way absorbed the rights of other riparian claimants were it not for the fact that the amount and extent of this usage of the stream has been, and still is, an increasing one. Industry has added to the sewage burden and the rapid extension of sewers and the more general installation of modern plumbing makes the total amount of waste to be disposed of much greater with a consequent like reduction in the usefulness of the streams to others.

The streams of a state are a part of its natural resources and their economic worth is measured by their ability to satisfy the needs of the citizens of the state. These needs are many and varied. They are not necessarily those which yield financial return. Many resources have an intangible value. When there were no methods, it is reasonable to presume that it was proper for the cities of the state to make what we should consider an emergency use of this resource, the value being measured by the capacity of the stream to dispose of sewage by dilution. With the developments in sewage treatment during the past decade or two there is reason to believe this period of emergency has passed, or is passing, and it is reasonable to expect that practices then resorted to be replaced by those which recognize the other uses of the streams and the rights of others in the drainage area to enjoy tangible or intangible benefits that were impossible with the stream in its polluted condition.

Our legal advisors will agree that under law certain emergencies may arise where one group is warranted in appropriating private property for public good with just and proper compensation. This is based on the theory that such appropriation of property is necessary to the public welfare and that

without such appropriation the public will be made to suffer a hardship. Because public property is public, there has been a tendency for groups to use it without thought of compensating anyone for such use.

We need to view these problems from the standpoint of the general public, and not only from the viewpoint of that part of the public represented by those who live in cities using the streams for sewage disposal or those interested, either directly or indirectly, in industries discharging objectionable wastes into the public waters of the state.

The policies of stream usage should be those which will serve this general public best without special advantages to some at the expense of others. Such usage is not necessarily uniform for all streams or even all places on the same stream. For example, Pennsylvania has classified the streams of that state into three groups allowing, in the interest of the general public good, different usages in each group. As a general rule, the public rights to a stream should control the usage of the stream, but much must depend on the type of stream and the usefulness to the public in its natural unpolluted state as compared with its usefulness as a drainage channel for removing some of the liquid wastes incident to the development of the area it drains. It is quite conceivable to have a stream whose greatest public usefulness is the removal of industrial waste and where a blind effort to preserve it for aquatic life and domestic use would mean a real economic loss. Such use of streams may be unavoidable and essential to the development of the natural resources and industry of a district, and justifiable only providing that harm be not done to other interests in the state of comparable value.

It is very important to remember, however, that any use of a stream that destroys or impairs its usefulness to the public or that portion of the public that might be classed as having riparian claims, results in a private loss to those individuals and a private gain to the city or industry responsible for the pollution. Any city or industry that finds it possible to use the surface waters of the state for the disposal of sewage wastes, and by such use avoids the expense of providing adequate disposal facilities, is obviously financially ahead by the capital saving represented by the cost of such disposal plant and its capitalized operating charges. It follows, then, that any comprehensive plan for the control of stream usage should recognize the necessity for the proper adjudication of all riparian claims when a conflict of interests in the stream is unavoidable.

We think of sewage treatment as being necessary for two reasons: First, to protect public health and second, to remove conditions objectionable to the senses. We are suggesting, in addition to these two well-known and fundamental reasons, there is a possible third, one that questions the continued right of a city or industry to use the public waters of the state for their individual sewage-disposal needs without in some manner compensating the general public for such use. However, except in rare cases, such compensation would not be practical, and this third reason might be interpreted to question the existence of any further need to appropriate the waters of the state for such sewage-disposal purposes. In this suggestion it is fully appreciated that this viewpoint is to a certain extent debatable and that frequently economic expediency will make it necessary to use the streams of the state for sewage

disposal and that the possibility of health hazards will continue to be the controlling factor in deciding where sewage treatment must be required.

There is, however, an important difference between economic expediency and economic justice, and when we are attempting to clarify our thinking as to what is right in the matter of stream pollution and the needs of sewage treatment, we must remember that economic expediency properly belongs to the emergency period and that as this period passes economic justice should replace expediency.

Respectfully submitted,

EARNEST BOYCE, *Chief Engineer.*

DIVISION OF VITAL STATISTICS.

Report for the Biennium Ending June 30, 1932.

DEAR DOCTOR BROWN—The report for the Division of Vital Statistics for the biennium ending June 30, 1931, is herewith submitted:

Deaths in Kansas from all causes for the year 1930 totaled 19,583, with a rate of 10.4 as compared to 19,448 deaths in 1929 with a rate of 11.3, an increase of 135 (6.9 per cent) over the previous year. Of the total deaths for 1930, 10,819 (55.2 per cent) were males, 8,764 (45.8 per cent) females, an increase of 28 (2.6 per cent) for males and 107 (12.2 per cent) increase in female deaths. However, the death rate shows a decrease from 11.3 in 1929 to 10.4 in 1930.

The reports show 18,648 deaths occurred in Kansas in 1931 with a rate of 9.9. This is a decrease of 935 (4.8 per cent) from the previous year and a decrease in rate from 10.4 to 9.9. Of the total deaths, 10,413 (55.8 per cent) were males and 8,235 (44.2 per cent) females, a decrease of 406 (3.7 per cent) in male deaths and 529 (6.04 per cent) in female deaths.

As in the past several years chronic heart disease holds first place as to cause of death, 2,885 and a rate of 153.3 for 1930 and 2,665 with a rate of 146.9 for 1931, a total of 5,550 deaths for the two-year period, which is a decrease of 57 (1.01 per cent) from preceding two years.

Cancer (all forms) holds second place in 1931 with a total of 1,863 and a rate of 97.8. In 1930 cancer ranked fourth with 1,818 deaths and a rate of 96.5. A total of 3,671 deaths from cancer occurred for the two-year period 1930-1931, showing an increase of 92 (2.4 per cent) over the two preceding years. While cancer occupied fourth place in 1930, and chronic nephritis second place, the deaths from cancer in 1931 place this disease in second place as to cause of deaths with chronic nephritis in third place.

Accidents resulted in 1,628 (8.3 per cent) deaths in 1930 and 1,486 (7.9 per cent) in 1931, a total of 3,116 for the two years; an increase of 231 (8.0 per cent) over the previous two-year period.

The death rate in Kansas has decreased from a high rate of 15.2 in 1918 to a rate of 9.9 in 1931; the birth rate decreased from a high rate of 23.7 in 1921 to a new low rate of 17.5 in 1931, and the marriage rate decreased from a high of 78.5 in 1918 to the low of 47.9 in 1931.

Typhoid fever has decreased from a rate of 19.2 in 1917 to a new low rate of 2.2 in 1931, and tuberculosis with a rate of 37.0 in 1931 is the lowest in fifteen years, except for 1930 with a rate of 36.8 and the 1927 rate of 35.1.

The number of deaths by age groups for 1930 and 1931 will be found in Table No. 31. For both years the proportion of total deaths (excepting the age group under one year) in each sex was highest between the ages of 70 and 79, the males in this ten-year age group showing 22.2 per cent of total male deaths and females showing 21.2 per cent of total female deaths for the year 1931. For 1930 males show 21 per cent and females 20.9 per cent of deaths in

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TABLE No. 30.—Birth, death, marriage and infant mortality rates: Rates for certain diseases, 1917-1931.

	1931.	1930.	1929.	1928.	1927.	1926.	1925.	1924.	1923.	1922.	1921.	1920.	1919.	1918.	1917.
Birth rate per 1,000 population	17.5	18.1	17.7	18.4	19.2	19.5	20.8	20.9	21.7	21.8	23.7	22.6	21.1	22.9	22.2
Death rate per 1,000 population	9.9	10.4	10.5	11.3	10.1	10.5	10.3	9.7	10.9	10.4	10.2	11.5	10.9	15.2	12.0
Marriage rate per 2,000 population	19.4	21.2	22.6	21.4	21.7	22.2	23.2	25.2	22.6	21.8	22.6	22.1	23.0	19.2	22.8
Infant mortality rate per 1,000 live births,	47.9	52.1	57.3	58.9	54.1	63.8	60.5	58.3	62.5	65.2	61.7	73.5	68.5	78.5	77.8
Death rate per 100,000, various diseases:															
Typhoid	2.2	2.9	2.8	2.4	3.5	4.5	5.6	4.0	6.0	5.9	8.5	7.8	7.6	16.4	19.2
Smallpox	0.37	0.31	0.1	0.3	0.05	0.1	0.05	0.21	0.0	3.7	3.7	0.1	0.1	1.5	0.1
Measles	0.42	4.1	2.4	0.9	4.5	4.7	0.2	7.3	3.9	0.2	4.3	4.6	0.6	18.0	15.8
Scarlet fever	1.2	2.3	3.2	2.7	3.9	1.8	1.9	2.0	3.6	4.0	6.1	5.5	2.8	4.2	3.6
Whooping cough	1.3	3.5	3.9	5.2	3.3	6.5	3.7	5.4	7.2	2.3	5.8	11.7	3.3	12.5	8.2
Diphtheria	3.6	5.5	3.6	3.3	4.1	2.6	3.9	4.8	8.3	15.9	21.5	14.9	10.8	7.5	8.9
Influenza	30.1	29.1	51.9	82.1	28.6	49.5	30.1	16.5	66.5	35.0	9.2	60.1	74.8	150.0	24.3
Tuberculosis all forms	37.0	36.8	38.2	40.5	35.1	40.9	42.9	41.6	41.7	43.9	43.4	49.3	50.8	59.9	58.6
Cancer all forms	97.8	96.5	93.8	100.4	100.0	91.8	84.3	76.2	80.1	77.9	78.5	71.0	69.7	73.1	70.6
Cerebral hemorrhage	92.5	97.1	106.3	110.2	99.6	99.8	100.8	89.0	90.5	84.5	100.0	104.0	92.3	96.1	95.4
Angina pectoris	14.3	14.7	14.7	13.6	11.9	11.9	10.8	9.8	10.1	10.1	7.5	6.9	6.8	5.6	7.2
Arteriosclerosis	14.6	16.2	16.0	16.6	16.6	15.6	18.1	24.4	24.5	22.8	25.5	16.8	18.2	21.9	25.4
Pneumonia all forms	51.2	54.1	58.4	68.3	50.7	59.1	65.9	67.3	89.6	78.8	58.5	131.6	130.6	348.9	123.8
Chronic nephritis	93.5	99.7	89.4	91.8	83.4	89.0	78.1	59.7	64.7	68.1	81.0	70.2	66.4	75.2	88.6
Diarrhea and enteritis, under 2 years,	8.2	11.8	10.2	17.1	13.7	19.0	18.6	19.0	22.4	21.8	25.7	30.0	25.0	30.6	45.3
Diarrhea and enteritis, over 2 years	6.1	7.8	5.7	7.5	7.2	10.4	12.9	10.2	13.6	15.8	16.3	14.8	14.9	15.4	26.2
Maternal deaths	5.8	6.9	6.1	7.2	5.8	6.9	5.6	5.3	6.2	8.4	6.2	6.3	6.6	7.7	6.7
Premature births	24.9	26.8	28.6	30.9	30.6	32.5	32.6	34.9	35.8	37.4	39.4	41.6	35.8	41.2	40.2
Senility	21.3	22.1	21.5	23.7	20.6	19.0	29.7	33.7	31.4	30.4	25.2	28.2	30.4	9.3	43.3
Accidents, except auto	52.9	46.1	47.7	58.6	51.4	55.6	47.4	39.4	53.4	52.5	48.6	54.6	57.3	57.5	63.5
Automobile accidents	21.7	24.4	20.5	16.4	13.7	13.0	12.9	8.1	11.7	9.4	8.6	9.1	6.5	7.7	6.4
Homicide	7.5	6.1	6.1	5.5	4.4	5.3	5.4	4.7	6.6	6.9	7.7	5.0	6.8	5.4	6.2
Diseases of heart	146.9	153.3	145.0	157.4	142.3	131.7	116.3	98.3	90.2	104.9	102.1	85.0	103.0	89.5	112.4
Infant mortality	47.9	52.1	57.3	58.9	54.1	63.8	60.5	58.3	62.5	62.9	61.6	73.5	68.5	78.5	45.3
Suicides	13.4	16.2	14.5	13.4	15.0	11.7	10.2	10.8	7.8	10.4	11.6	10.5	12.1	12.4	10.5

respective sexes. The males in this group show 12.4 per cent and females 9.3 per cent for 1930, and for 1931 males show 11.6 per cent and females 9.9 per cent of all deaths.

TABLE No. 31.—Number of deaths, by age groups, 1931-1930.

Ages.	1931.			1930.		
	Male.	Female.	Total.	Male.	Female.	Total.
Under 1 month	595	440	1,035	649	460	1,111
Under 1 year	291	260	551	380	277	660
1-2	165	115	280	224	203	422
3-4	67	71	138	114	91	205
5-9	142	105	247	185	141	326
10-14	134	98	232	154	105	259
15-19	227	153	380	248	205	453
20-24	245	224	469	272	221	493
25-29	219	192	411	259	222	481
30-34	235	228	463	261	254	515
35-39	288	266	554	284	275	559
40-44	342	286	628	337	298	635
45-49	460	315	775	410	348	758
50-59	1,261	937	3,098	1,207	940	2,147
60-69	1,847	1,271	3,118	1,880	1,349	3,229
70-79	2,313	1,749	4,062	2,277	1,832	4,109
80-89	1,373	1,310	2,683	1,462	1,307	2,769
90-99	202	208	410	205	225	430
100 and over	7	7	14	11	11	22
Totals	10,413	8,235	18,648	10,819	8,764	19,583

TABLE No. 32.—Deaths, by months, sex, color, conjugal conditions and nativity, ten-year period.

Year	1931.	1930.	1929.	1928.	1927.	1926.	1925.	1924.	1923.	1922.
Total deaths	18,648	19,583	19,448	20,917	18,596	19,162	18,694	17,865	19,872	18,920
Death rate	9.9	10.4	11.3	11.3	10.1	10.5	10.3	9.7	10.9	10.4
Male	10,413	10,819	10,791	11,442	10,299	10,515	10,275	9,913	10,789	10,496
Female	8,235	8,764	8,657	9,475	8,297	8,647	8,419	7,952	9,083	8,434
White	17,497	18,472	18,178	19,586	17,488	18,216	17,335	16,804	18,677	17,833
Black	1,131	1,094	1,241	1,304	1,104	943	1,153	1,055	1,181	1,082
Others	20	17	29	27	4	3	6	6	24	15
Single	4,592	5,140	5,085	5,479	5,024	5,557	5,427	5,405	6,094	6,018
Married	8,474	8,660	8,666	9,333	8,379	8,274	8,127	7,545	8,545	8,070
Widowed	5,133	5,317	5,255	5,675	4,842	4,947	4,761	4,435	4,908	4,505
Divorced	350	359	368	329	273	305	273	313	229	234
Unknown	99	107	74	101	78	79	106	170	96	103
Native	16,123	16,950	16,715	18,900	16,345	16,824	16,377	16,772	17,139	16,348
Foreign	2,177	2,275	2,362	1,783	2,172	2,228	2,317	1,072	2,733	2,582
Unknown	348	358	371	234	79	110	0	21	0	0
January	1,875	1,760	2,115	1,824	1,726	1,723	1,695	1,788	1,834	1,834
February	1,606	1,681	1,778	1,602	1,403	1,686	1,521	1,598	1,968	1,968
March	1,741	1,818	1,885	2,306	1,704	1,952	1,912	1,775	2,253	2,068
April	1,566	1,698	1,617	1,860	1,591	1,703	1,618	1,584	1,695	1,539
May	1,593	1,585	1,583	1,668	1,528	1,596	1,475	1,452	1,511	1,456
June	1,573	1,556	1,451	1,415	1,452	1,368	1,357	1,377	1,358	1,346
July	1,522	1,656	1,405	1,462	1,532	1,521	1,511	1,316	1,451	1,451
August	1,362	1,564	1,506	1,526	1,433	1,452	1,539	1,432	1,540	1,466
September	1,369	1,389	1,313	1,480	1,403	1,443	1,365	1,210	1,336	1,357
October	1,442	1,513	1,406	1,532	1,517	1,483	1,461	1,336	1,426	1,415
November	1,511	1,445	1,547	1,594	1,520	1,528	1,556	1,352	1,377	1,517
December	1,488	1,918	1,742	2,648	1,787	1,707	1,684	1,645	1,518	1,663

In the five-year period group is found the greatest number of deaths between 45 and 49; the males with 44.2 per cent of total male deaths, females with 38.2 per cent of total female deaths in 1931; for 1930 in the same age group is found males with 37.9 per cent and females with 39.7 per cent of the total deaths in respective sex, the males in this group for 1931 show 2.5 per cent and females 1.7 per cent of all deaths, while for 1930 the males show 2.1 per cent and females 1.8 per cent of all deaths.

Comparative data showing maternal, infant and neonatal deaths by race is given in Tables Nos. 33 and 34 for the state, rural and urban. The maternal death rate for the state in 1930 was 6.9 and in 1931 the rate was 5.8. The urban rate for 1930 was 9.3 and for 1931 the rate was 8.6 while the rural rate for 1930 was 5.1 and 4.1 for 1931.

TABLE No. 33.—Mortality of mothers and infants. Maternal, infant and neonatal deaths with rate per 1,000 live births; and deaths under 5 years of age, with rates per 1,000 population under 5 years of age, for the state of Kansas, urban and rural, by color, 1930.

	Total.		White.		Colored.	
	Death.	Rate.	Death.	Rate.	Death.	Rate.
THE STATE:						
Maternal deaths	237	6.9	224	6.8	13	12.3
Neonatal deaths (under one month)	1,111	32.6	1,060	32.1	51	50.6
Infant deaths (under one year)	1,766	51.9	1,676	50.8	90	89.4
Infant deaths (under five years)	2,392	1.3	2,263	1.2	126	1.9
URBAN (over 5,000 population)						
Maternal deaths	128	9.3	118	9.1	10	12.3
Neonatal deaths (under one month)	448	32.5	408	31.4	40	51.4
Infant deaths (under one year)	748	54.2	681	52.3	67	86.1
Infant deaths (under five years)	1,027	1.6	929	1.6	98	2.0
RURAL:						
Maternal deaths	108	5.1	105	5.1	3	13.1
Neonatal deaths (under one month)	663	31.6	652	31.4	11	48.0
Infant deaths (under one year)	1,016	48.4	993	47.9	23	10.4
Infant deaths (under five years)	1,364	1.1	1,336	1.1	28	1.5

TABLE No. 34.—Mortality of mothers and infants. Maternal, infant and neonatal deaths with rate per 1,000 live births; and deaths under 5 years of age with rates per 1,000 population under 5 years of age, for the state of Kansas, urban and rural, by color, 1931.

	Total.		White.		Colored.	
	Death.	Rate.	Death.	Rate.	Death.	Rate.
THE STATE:						
Maternal deaths	192	5.8	180	5.6	12	12.0
Neonatal deaths (under one month)	1,035	31.2	1,008	31.4	27	27.1
Infant deaths (under one year)	1,586	47.9	1,541	50.8	45	45.2
Infant deaths (under five years)	2,004	1.1	1,934	1.1	70	1.1
URBAN (over 5,000 population):						
Maternal deaths	108	8.6	97	8.2	11	14.8
Neonatal deaths (under one month)	387	31.0	367	31.2	20	26.8
Infant deaths (under one year)	600	48.1	566	48.2	34	45.7
Infant deaths (under five years)	790	1.3	737	1.3	53	1.1
RURAL:						
Maternal deaths	84	4.1	83	4.1	1	3.1
Neonatal deaths (under one month)	648	41.5	640	31.4	8	25.0
Infant deaths (under one year)	986	47.8	974	47.8	12	37.5
Infant deaths (under five years)	1,214	.96	1,195	.96	16	.86

These tables show the urban rate to be the highest and the rural rate lowest in both years with the rural rates being also lower than the rates for the state as a whole. This same condition also prevails in infant deaths under one year and in infant deaths under five years. In 1930 the rural rate for noenatal was the lowest, in 1931 the urban rate was lowest and the rural noenatal deaths the highest.

Statistics giving population, births, deaths and stillbirths, with rates for the state, urban and rural, is given in Tables No. 35 and No. 36. In 1930 the rural birth rate was the lowest with 16.6. The urban highest with 20.9, while the rural death rate was lowest with 8.9 and the urban high with 13.5.

The rural stillbirths with a rate of 2.9 is lower than the urban stillbirth rate with 3.5. These same conditions are found in the table for 1931. The death and stillbirth rates for the colored race is higher in each instance when compared to the white race.

TABLE No. 35.—Population; births, deaths and stillbirths, with rates per 1,000 population; and excess of births over deaths for the state of Kansas, urban and rural, by color, 1930.

	Total.		White.		Colored.	
	Number.	Rate.	Number.	Rate.	Number.	Rate.
THE STATE:						
Population	1,880,999	.....	1,814,655	.....	66,344	.....
Births	33,984	18.1	32,976	17.5	1,007	15.2
Deaths	19,583	10.4	18,486	10.2	1,097	16.5
Stillbirths	1,068	3.1	1,023	3.1	45	4.5
Excess births over deaths	14,401	.....	14,490	.....	*90	.....
URBAN†:						
Population	621,911	.....	574,073	.....	47,818	.....
Births	13,008	20.9	12,230	21.3	778	16.3
Deaths	8,366	13.5	7,565	13.2	801	16.7
Stillbirths	462	3.5	432	3.5	30	3.8
Excess births over deaths	4,642	.....	4,665	.....	*23	.....
RURAL:						
Population	1,259,088	.....	1,240,562	.....	18,526	.....
Births	20,976	16.6	20,747	16.7	229	12.4
Deaths	11,217	8.9	10,921	8.9	296	15.9
Stillbirths	606	2.9	591	2.8	15	6.5
Excess births over deaths	9,759	.....	9,826	.....	*67	.....

* Excess of deaths over births.

† Urban: Cities having over 5,000 population in 1930, viz., Iola, Atchison, Great Bend, Fort Scott, El Dorado, Concordia, Arkansas City, Winfield, Pittsburg, Abilene, Lawrence, Garden City, Dodge City, Ottawa, Junction City, Newton, Parsons, Leavenworth, Emporia, McPherson, Independence, Coffeyville, Pratt, Hutchinson, Manhattan, Salina, Wichita, Liberal, Topeka, Wellington, Kansas City.

Figure 38 shows infant deaths by age groups for 1931. It will be noted the greatest proportion of deaths occurred in the age group under one day. The three principal causes of death in this group were premature births which numbered 282 (54.6 per cent), injury at birth 43 (8.1 per cent), and malformations 38 (7.4 per cent).

In the age group one day and under one week, premature births still lead as to principal cause with 91 (28.9 per cent), malformations second with 79 (25.1 per cent) and injury at birth caused 57 (18.1 per cent).

In the age group under one month, premature birth was given as the principal cause of death for 59 (29.8 per cent), malformations second with 43 (21.7 per cent) and broncho pneumonia third place with 30 (15.1 per cent)

TABLE No. 36.—Population; births, deaths and stillbirths, with rate per 1,000 population; and excess of births over deaths for the state of Kansas, urban and rural, by color, 1931.

	Total.		White.		Colored.	
	Number.	Rate.	Number.	Rate.	Number.	Rate.
THE STATE:						
Population	1,880,999	.....	1,814,655	.....	66,344	.....
Births	33,075	17.5	32,081	16.9	994	14.9
Deaths	18,648	9.9	17,517	9.6	1,131	17.0
Stillbirths	956	2.9	920	2.9	36	3.6
Excess births over deaths	14,427	.....	14,564	.....	*137	.....
URBAN†						
Population	621,911	.....	574,073	.....	47,818	.....
Births	12,478	20.0	11,734	20.0	744	15.5
Deaths	7,673	12.3	6,862	11.9	811	16.9
Stillbirths	433	3.5	409	3.5	24	3.2
Excess births over deaths	4,805	.....	4,872	.....	*67	.....
RURAL:						
Population	1,259,088	.....	1,240,562	.....	18,526	.....
Births	20,597	16.4	20,366	16.4	231	12.5
Deaths	10,975	8.7	10,655	8.6	320	17.2
Stillbirths	523	2.5	511	2.5	12	5.2
Excess births over deaths	9,622	.....	9,711	.....	*89	.....

* Excess of deaths over births.

† Urban: Cities having over 5,000 population in 1931, viz., Iola, Atchison, Great Bend, Fort Scott, El Dorado, Concordia, Arkansas City, Winfield, Pittsburg, Abilene, Lawrence, Garden City, Dodge City, Ottawa, Junction City, Newton, Parsons, Leavenworth, Emporia, McPherson, Independence, Coffeyville, Pratt, Hutchinson, Manhattan, Salina, Wichita, Liberal, Topeka, Wellington, Kansas City.

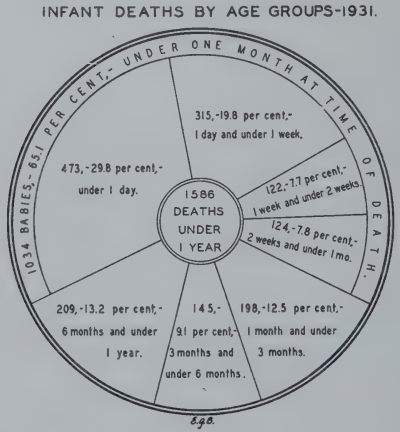


FIG. 38.

deaths. Infectious diseases were first noted as one of the principal causes of death in this group.

In the age group under one year and over one month, diarrhea and enteritis lead as the principal cause of death with 95 (17.5 per cent); influenza was second with 64 (11.8 per cent); malformations third with 48 (8.8 per cent); congenital debility fourth with 17 (3.1 per cent), and whooping cough fifth with 16 (2.9 per cent).

With a total of 1,586 infant deaths under one year of age communicable

diseases were responsible for 466 (29.4 per cent) of the total deaths. In the past decade preventive medicine has made very favorable progress in the control of communicable diseases but these records show the need of greater efforts by every individual in the state. Table No. 37 shows the infant and maternal mortality, Table No. 38 the number and causes of infant deaths with rates per 100,000, and Table No. 39 maternal deaths and rates.

Premature birth is given as the principal cause of infant deaths the rate being 26.7 per 100,000 in 1930 and 24.9 in 1931. For the previous five years premature birth also was the greatest single cause of infant deaths.

Puerperal septicemia (not specified as due to abortion) is given as the cause for the greatest number of maternal deaths, the rate being 4.7 for 1930, but a new low rate of 2.1 for 1931.

TEN PRINCIPAL CAUSES OF DEATH.

During the year 1931, 12,634 deaths were reported in Kansas resulting from ten diseases which may be designated as the "Ten Principal Causes." The causes and number of deaths included: chronic heart disease, 2,665; cancer, 1,853; Bright's disease, 1,767; apoplexy, 1,749; accidents, 1,488; pneumonia, 968; tuberculosis, 700; influenza, 568; premature birth, 472; and old age, 403.

Year after year, and in the absence of epidemics of influenza and other respiratory diseases, deaths from the ten principal causes total approximately 60 per cent of the deaths from all causes. Included in the first four will be found and usually in order of importance: chronic heart disease, cancer, Bright's disease and apoplexy. Three of these diseases are common to old age, diseases which occur as a natural wearing out of the body and frequently designated as "degenerative diseases." The fourth, cancer, occurs at any age, but is more frequent after 35, and the greater proportion of cases occur in females.

In considering the ten principal causes by sex, it is found in 1931, old age was supplanted by suicide as the tenth cause for males, there being 246 deaths charged to suicide as compared with 198 deaths from old age. While chronic heart disease continues as the first cause for males, accidents caused the second highest total with Bright's disease, apoplexy and cancer in third, fourth and fifth places, respectively. The influence of certain communicable diseases is noted in the total of 1,191 deaths from pneumonia, tuberculosis and influenza which rank sixth, seventh and eighth, respectively.

In considering the ten principal causes for female deaths, the first eight causes remain in order as for both sexes with the exception that apoplexy and Bright's disease are reversed. However, old age as the tenth cause of death for both sexes is replaced by diabetes as the ninth cause for females and premature birth assumes tenth place.

Approximately ten per cent of heart disease deaths occurred in each sex before age fifty. Female deaths under fifty from Bright's disease were slightly less than one-half of male deaths. Approximately four deaths of males under fifty from apoplexy occurred for each female death. Due to the fact that cancer so frequently affects the female organs, and in the younger age groups, the proportion of female deaths under fifty from this cause was 19 for each 13 male deaths.

TABLE No. 37.—Kansas infant and maternal mortality.

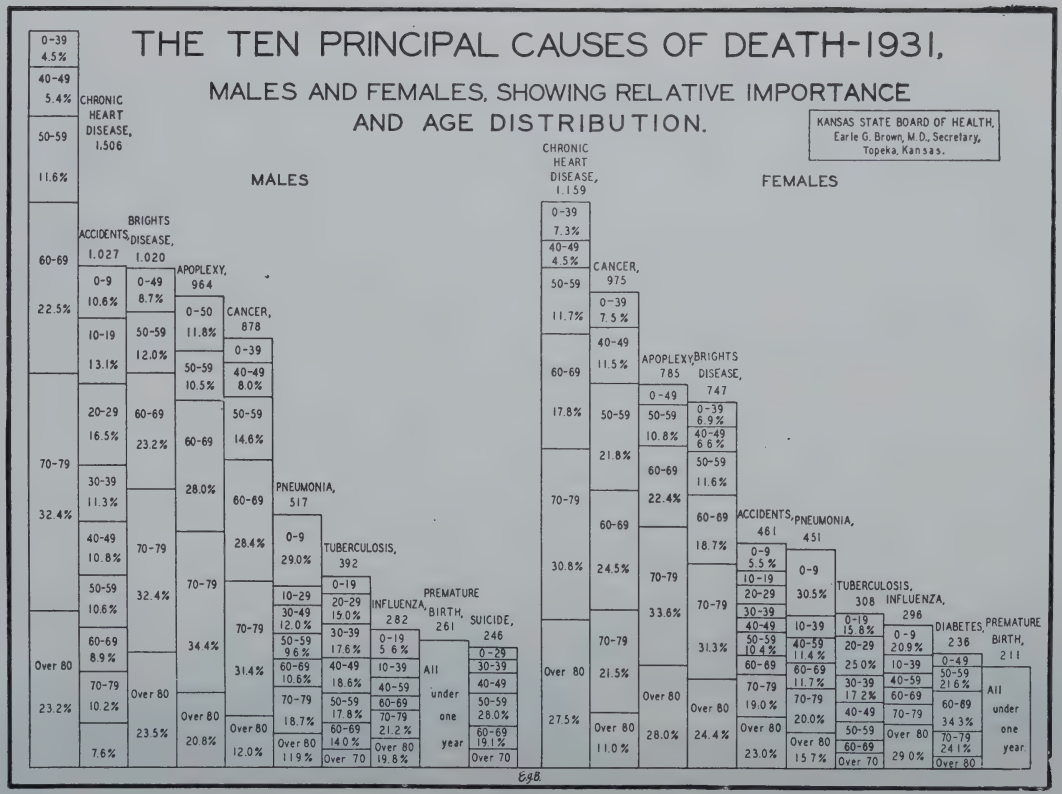
	1931.	1930.	1929.	1928.	1927.	1926.	1925.
Births	33,075	33,984	33,854	33,860	35,230	35,668	37,718
Birth rate (per 1,000 live births)	17.5	18.1	17.7	18.4	19.2	19.5	20.8
Stillbirths	954	1,068	1,105	1,131	1,114	1,217	1,246
Deaths under one year	1,586	1,771	1,883	1,996	1,906	2,282	2,283
Deaths after birth (under one month)	551	660	1,124	1,073	1,216	1,273	999
Stillbirths plus birth mortality	1,505	1,728	2,229	2,204	1,249	2,490	2,530
Infant mortality rate (per 1,000 live births)	47.9	52.1	57.3	58.9	54.1	63.8	60.5
Maternal deaths	192	237	201	245	206	247	214
Maternal rates	5.8	6.97	6.1	7.2	5.8	6.9	5.7

TABLE No. 38.—Number and causes of infant deaths and rates per 100,000.

	1931.		1930.		1929.		1928.		1927.		1926.		1925.	
	Death.	Rate.	Death.	Rate.	Death.	Rate.	Death.	Rate.	Death.	Rate.	Death.	Rate.	Death.	Rate.
Premature births	472	24.9	505	26.8	530	28.6	569	30.9	565	30.7	594	32.5	593	32.6
Congenital malformations:														
(a) Hydrocephalus	28	1.48	22	1.16	15	0.8	21	1.1	20	1.1	23	1.3	18	1.0
(b) Malformations of heart	144	7.6	177	9.4	184	9.9	166	9.0	191	10.3	182	10.0	143	7.8
(c) *Spina bifida*	23	1.2	56	2.9	64	3.4	.....	.....	.....	.....	.....	.....	.....	.....
(d) Others under this title	38	2.0	.....	.....	.....	.....	47	2.5	46	2.5	70	3.8	72	3.9
Injury at birth	125	6.6	143	7.6	139	7.5	125	6.7	135	7.3	117	6.4	122	6.8
Other diseases	76	4.0	50	2.6	48	2.8	48	2.6	66	3.5	57	3.1	88	4.8
Congenital debility	51	2.7	76	4.0	95	5.1	87	4.7	102	5.5	113	6.2	226	12.4
Lack of care	1	0.5	4	0.2	1	0.1	1	0.1	.....	.....	2	0.1	5	0.3

TABLE No. 39.—Maternal deaths and rates by rank.

Cause of Death.	1931.		1930.		1929.		1928.		1927.		1926.		1925.	
	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.	No.	Rate.
Puerperal septicemia not specified as due to abortion,					74	3.9	91	4.9	72	3.9	56	3.07	60	3.3
(a) Septicemia—pyemia														
(b) Puerperal septicemia	41	2.1	89	4.7										
Other accidents of childbirth			18	0.95										
(a) Cesarean operation	13	0.68	4	0.21	3	0.15	7	0.35	6	0.32	10	0.55	4	0.2
(b) Others under this title	20	1.05	2	0.1	22	1.18	19	1.0	30	1.35	29	1.6	17	0.93
Puerperal albuminuria	26	1.4	58	3.1	50	2.6	56	3.0	50	2.7	42	2.3	49	2.7
Puerperal hemorrhages					21	1.1	21	1.1	17	0.92	21	1.1	18	1.0
(a) Placenta prævia	10	0.52												
(b) Other puerperal hemorrhages	11	0.58	28	1.4										
Abortion with septic condition	18	0.95	8	0.42	11	0.58	13	0.7	11	0.59	48	2.6	27	1.5
Abortion without septic conditions to include hemorrhages	17	0.89												
Other toxemias of pregnancy	15	0.79												
Ectopic gestation:														
(a) With septic condition specified	1	0.05	8	0.42	7	0.43	11	0.55	7	0.38	8	0.43	15	0.82
(b) Without mention septic condition	7	0.37												
Puerperal phlegmasia	6	0.31	17	0.90	6	0.32	14	0.76	10	0.55	10	0.55	10	0.55
Unspecified conditions of puerperal state	6	0.31			2	0.15	2	0.15	3	0.16	9	0.5	3	0.15
Other accidents of pregnancy	1	0.05	3	0.15	5	0.26	10	0.5	5	0.27	14	0.77	9	0.49


THE TEN PRINCIPAL CAUSES OF DEATH-1931,
MALES AND FEMALES, SHOWING RELATIVE IMPORTANCE AND AGE DISTRIBUTION.
KANSAS STATE BOARD OF HEALTH, Earle G. Brown, M.D., Secretary, Topeka, Kansas.
MALES
FEMALES
CHRONIC HEART DISEASE, 1.506
ACCIDENTS, 1.027
BRIGHTS DISEASE, 1.020
APOPLEXY, 964
CANCER, 878
PNEUMONIA, 517
TUBERCULOSIS, 392
INFLUENZA, 282
PREMATURE BIRTH, 261
SUICIDE, 246
CHRONIC HEART DISEASE, 1.159
CANCER, 975
APOPLEXY, 785
BRIGHTS DISEASE, 747
ACCIDENTS, 461
PNEUMONIA, 451
TUBERCULOSIS, 308
INFLUENZA, 296
DIABETES, 236
PREMATURE BIRTH, 211
0-39 4.5%
40-49 5.4%
50-59 11.6%
60-69 22.5%
70-79 32.4%
Over 80 23.2%
7.6%
0-9 10.6%
10-19 13.1%
20-29 16.5%
30-39 11.3%
40-49 10.8%
50-59 10.6%
60-69 8.9%
70-79 10.2%
Over 80
0-49 8.7%
50-59 12.0%
60-69 23.2%
70-79 32.4%
Over 80 23.5%
0-50 11.8%
50-59 10.5%
60-69 28.0%
70-79 34.4%
Over 80 20.8%
0-39
40-49 8.0%
50-59 14.6%
60-69 28.4%
70-79 31.4%
Over 80 12.0%
0-9 29.0%
10-29
30-49 12.0%
50-59 9.6%
60-69 10.6%
70-79
18.7%
Over 80 11.9%
0-19
20-29 15.0%
30-39 17.6%
40-49 18.6%
50-59 17.8%
60-69 14.0%
Over 70
0-19 5.6%
10-39
40-59
60-69
70-79 21.2%
Over 80 19.8%
All under one year
0-29
30-39
40-49
50-59 28.0%
60-69 19.1%
Over 70
0-39 7.3%
40-49 4.5%
50-59 11.7%
60-69 17.8%
70-79 30.8%
Over 80 27.5%
0-39 7.5%
40-49 11.5%
50-59 21.8%
60-69 24.5%
70-79 21.5%
Over 80 11.0%
0-49
50-59 10.8%
60-69 22.4%
70-79 33.6%
Over 80 28.0%
0-39 6.9%
40-49 6.6%
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Over 80 23.0%
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70-79 20.0%
Over 80 15.7%
0-19 15.8%
20-29 25.0%
30-39 17.2%
40-49
50-59
60-69
Over 70
0-9 20.9%
10-39
40-59
60-69
70-79
Over 80 29.0%
0-49
50-59 21.6%
60-69 34.3%
70-79 24.1%
Over 80
All under one year.
E.g.B.

FIG. 39.

Approximately 32 per cent of female deaths from accidents occurred in those over 70 years, the majority of deaths occurring as the result of injuries received in accidental falls. One-third of the male deaths from this cause occurred in the age group 10 to 29 years. Male deaths in each of the succeeding decades were considerably higher than female deaths in the corresponding age groups and may be accounted for largely as a result of injuries received while engaged in their occupations.

The highest proportion of deaths from pneumonia or influenza in both sexes occurred in the very young and very old. Tuberculosis deaths in males

TABLE No. 40.—Ten principal causes of death, 1927-1931.

Cause of Death.	1931.		1930.		1929.		1928.		1927.	
	Rank.	No.	Rank.	No.	Rank.	No.	Rank.	No.	Rank.	No.
Organic heart disease	1	2,665	1	2,885	1	2,682	1	2,895	1	2,616
Cancer, all forms	2	1,853	4	1,818	3	1,733	3	1,846	2	1,839
Chronic nephritis	3	1,767	2	1,878	4	1,656	4	1,688	4	1,534
Cerebral hemorrhage	4	1,749	3	1,826	2	1,968	2	2,026	3	1,832
Accidents	5	1,488	5	1,628	5	1,503	6	1,382	5	1,345
Pneumonia	6	968	6	1,019	6	1,083	7	1,257	6	931
Tuberculosis all forms	7	700	7	693	8	707	5	745	7	645
Influenza	8	568	8	550	7	961	9	1,511	9	526
Premature birth	9	472	9	505	9	531	.....	569	8	564
Diabetes	10	415	.....	.....	10	401	.....	.....	.....	.....
Senility	.....	.....	10	416	.....	.....	.....	.....	.....	.....
Diarrhea and enteritis	.....	.....	.....	.....	.....	.....	10	453	10	385
Totals	.....	12,706	.....	13,218	.....	12,121	.....	13,426	.....	11,251
Per cent total deaths	.....	68.1	.....	67.5	.....	62.3	.....	64.1	.....	60.1
Total deaths all causes	.....	18,648	.....	19,583	.....	19,450	.....	20,917	.....	18,713
Death rate per 1,000	.....	9.9	.....	10.4	.....	10.5	.....	11.3	.....	10.2

TABLE No. 41.—Death rates per 100,000 population in 1931 as compared with 1930, by causes of death.

Causes.	1930.	1931.	1931 decrease or increase.
Causes of death showing decreases.			
Whooping cough	3.5	1.3	2.2
Chronic nephritis	99.7	93.5	6.2
Maternal deaths	12.2	5.8	6.4
Cerebral hemorrhage	97.1	92.5	4.6
Diarrhea and enteritis	11.8	8.2	3.6
Pneumonia (all forms)	54.1	51.2	2.9
Organic heart disease	153.3	141.1	6.4
Automobile accidents	24.4	21.7	2.7
Measles	4.1	0.4	3.7
Suicides	16.4	16.0	0.4
Scarlet fever	2.3	1.2	1.1
Typhoid fever	2.9	2.2	0.7
Totals	481.8	440.9	—40.9
Causes of death showing increases.			
Tuberculosis (all forms)	36.8	37.1	0.3
Cancer	96.5	98.1	1.6
Influenza	29.1	30.1	1.0
Homicides	6.2	7.5	1.3
Diphtheria	3.5	3.6	0.1
Totals	172.1	176.4	+4.3
Grand totals	653.9	617.3	—36.6

occurred in the highest proportion in the age group 30 to 39 years. One-fourth of the female deaths from this disease were in the age group 20 to 29 years, and the second highest, 17 per cent, between 30 and 39.

Included in the ten principal causes of death each year are many which are both preventable or postponable. Tuberculosis is a preventable disease, the problem being two-fold—personal and social—the one relating to adequate care of personal health; the other to intelligent social effort to provide sanitary conditions for others. Likewise, influenza or pneumonia are considered as preventable diseases, through avoidance of contact, sufficient sleep and rest in well-ventilated rooms, the building of a high body resistance and the practice of personal hygiene.

While heart disease, apoplexy or Bright's disease are essentially diseases of persons over 50 years of age, many cases develop as the result of acute infectious diseases in childhood including rheumatism, errors in diet, excesses

TABLE No. 42.—Deaths by external causes for ten years.

Causes.	1931.	1930.	1929.	1928.	1927.	1926.	1925.	1924.	1923.	1922.
Total external deaths	2,044	2,055	1,890	1,731	1,684	1,565	1,467	1,280	1,502	1,469
Rate per 100,000 population	108.2	109.2	102.0	94.1	91.0	85.1	80.9	70.1	82.3	81.2
Suicide by solid or liquid poisons	56	29	23	13	21	16	5	47	46	42
Suicide by corrosive substance	0	31	39	31	48	22	30			
Suicide by poisonous gas	10	6	5	2	3	4	1	3	1	3
Suicide by hanging or strangulation	47	54	41	51	42	40	41	43	30	35
Suicide by drowning	16	11	10	16	14	10	11	9	11	13
Suicide by firearms	154	154	136	117	127	108	83	81	82	84
Suicide by cutting or piercing instruments	16	14	13	11	12	9	9	12	14	9
Suicide by jumping from high places	1	2	4	1	3	0	1	1	0	1
Suicide by crushing	2	2	0	3	3	3	1	2	0	0
Other suicides	2	7	1	2	4	2	5	0	5	2
Poisoning by food	14	13	26	21	13	21	26	13	28	26
Poisoning by venomous animals	4	2	2	5	4	8	6	0	0	36
Other acute accidental poisonings (gas excepted)	29	35	29	23	28	25	32	35	35	26
Conflagrations	21	29	1	25	22	28	17	31	51	22
Accidental burns (conflagrations excepted)	86	120	100	100	93	92	83	69	87	69
Accidental mechanical suffocation	19	27	26	11	12	31	19	0	0	0
Accidental absorption of irrespirable or poisonous gases	25	17	29	16	21	14	23	45	45	36
Accidental drownings	81	69	83	75	97	65	79	69	75	94
Accidental traumatism by firearms	47	68	81	46	58	56	51	42	42	56
Accidental traumatism by cutting or piercing instruments	32	3	3	0	5	2	4	4	1	6
Accidental traumatism by fall	380	320	308	317	258	283	178	99	208	202
Mine accidents	16	12	22	18	21	22	22	15	29	18
Quarry accidents	0	0	2	0	5		4			
Accidental traumatism by machine	55	58	53	27	45	32	29	32	43	42
Railroad accidents	122	117	125	137	136	110	133	134	146	145
Street car accidents	5	5	6	6	10	11	7	12	10	10
Automobile accidents	410	460	381	303	253	237	235	149	213	171
Aeroplane and balloon accidents	20	33	28	7	4	7	4	0	0	0
Motorcycle accidents	6	4	3	2	0	3	4	0	0	0
Injuries by other vehicles	26	14	22	27	22	34	37	18	25	40
Landslides and other crushings	13	6	1	9	9	11	6	0	4	4
Injuries by animals	18	33	26	35	37	18	36	29	37	56
Starvation	1	1	3	2	0	0	3	4	6	2
Excessive cold	4	11	11	11	6	10	8	7	4	6
Excessive heat	75	65	12	25	13	21	23	11	16	13
Lightning	10	11	8	11	11	9	12	25	2	11
Other accidental electric shocks	13	27	29	25	21	22	15	29	19	28
Homicide by firearms	90	79	64	69	51	74	69	64	90	95
Homicide by cutting or piercing instruments	8	6	12	3	5	7	10	7	8	7
Homicide by other means	44	32	38	25	16	18	18	16	22	23
Fractures, cause not specified	0	0	0	2	0	0	20	54	4	1
Other external violence	65	68	82	98	121	79	67	69	44	35
Wounds of war	0	0	1	0	3	0	0	0	0	0
Infanticide	1	0	1	3	7	1	0	0	0	0

of various kinds and numerous other causes. The prevention of these diseases includes the prevention of the acute communicable diseases, proper care of the teeth, proper attention to the diet and the avoidance of excesses of all kinds. If these chronic diseases do develop and are discovered in an early stage, a proper limitation of the patient's activities, a suitable mode of life, and, if necessary, well-selected medication controlled by expert observation and necessary examinations by a competent medical man will, in the majority of cases, allow those individuals to live normal, useful and long lives.

Proper medical supervision during pregnancy and the institution of proper corrective measures will reduce very materially the great number of premature births and resultant deaths. There are certain definite warning signs in cancer. If these warning signs are given prompt attention and medical advice followed, many cases will be prevented.

Deaths by external causes for a period of ten years will be found in Table No. 42, which shows a total of 4,099 deaths for 1930-1931, as compared to a total of 3,621 in 1928-1929, an increase of 478 over the previous two-year period.

Automobile accidents with a total of 870 for the two-year period leads as to cause. Accidental traumatism by fall, with a total of 700 is second. Suicide by firearms with a total of 308 ranks third. Railroad accidents with 239 hold fourth place and accidental burns rank fifth.

In 1931 tuberculosis caused 700 deaths in Kansas, these deaths by age group are classified in Table No. 43 which also shows the greatest number of deaths occurred between the ages of 20 to 24 in the five-year-period group. There were 70 deaths in this group, 10 per cent of all deaths for the year.

In the ten-year-period group the greatest number of deaths occurred between the ages of 50 and 59 (15.2 per cent).

TABLE No. 43.—Kansas tuberculosis deaths, by age group, for 1931.

Age.	Class 23.	Class 24.	Class 25.	Class 26.	Class 27A.	Class 27B.	Class 29.	Class 30.	Class 31.	Class 32A.	Class 32B.	Total.
1	4	2										6
1–2	4	5		1								10
3–4	1									1		2
5–9	1	2		1								4
10–14	11	1										12
15–19	47	2		1								50
20–24	65	1	2		1	1						70
25–29	61	1	1	2				1				66
30–34	55		1									56
35–39	59	1	3	1		2						66
40–44	61		1					2				64
45–49	37	1	4	1		1	1	3	1			49
50–59	98		2			2		4			1	107
60–69	68		6	1	1	1		1	1			79
70–79	43	1	2	1	1			1				49
80–89	9							1				10
Totals	624	17	22	9	3	7	1	13	2	1	1	700

EXPLANATION.

Class 23.....Tuberculosis of the respiratory system.
Class 24.....Central nervous system.
Class 25.....Intestines and peritoneum.
Class 26.....Vertebral column.
Class 27A...Tuberculosis of the bones.
Class 27B...Tuberculosis of the joints.
Class 29.....Lymphatic system.
Class 30.....Genitourinary system.
Class 31.....Tuberculosis of other organs.
Class 32A...Disseminated tuberculosis, acute.
Class 32B...Disseminated tuberculosis, chronic.

Figure 40 shows by comparison the increasing demand for certified copies of birth and death certificates, this should explain the need for accurate and complete information on each certificate. Incomplete certificates are of little value and in many cases often cause delay and inconvenience to people desiring certified copies. A certified copy issued from this office must be an exact copy of the record on file. It bespeaks well of a physician's ability if the certified copy goes forth complete in every detail. There are various reasons why birth and death records should contain correct and definite information and properly recorded. There is hardly a relation in life, social, legal or economic in which the evidence furnished by accurate registration of births or deaths may not prove to be of the greatest value, not only to the individual but also to the public at large. It is not only an act of civilization to register birth and death certificates but good business, as they are frequently used in many practical ways.

TABLE No. 44.—Certified copies of birth and death certificates issued, 1925 to 1931.

Year.	Certified copies of birth and death paid for.	Certified copies issued free of charge for government pension.	Total number of certified copies issued.	Total amount of cash received for certified copies of birth and death.
	No. issued.	No. issued.	Total issued.	Cash received.
1925	1,971	1,015	2,986	$985.50
1926	1,710	1,098	2,808	855.00
1927	1,961	1,022	2,983	980.50
1928	2,173	989	3,162	1,086.50
1929	2,788	1,274	4,062	1,394.00
1930	2,684	1,784	4,432	1,342.00
1931	2,718	1,984	4,702	1,359.00
Totals	16,005	9,130	25,135	$8,002.50

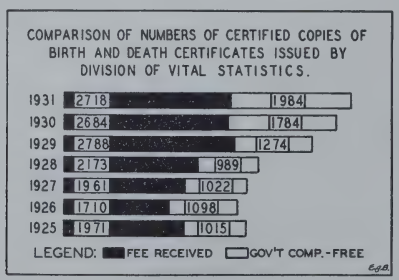
COMPARISON OF NUMBERS OF CERTIFIED COPIES OF BIRTH AND DEATH CERTIFICATES ISSUED BY DIVISION OF VITAL STATISTICS.
1931 2718 1984
1930 2684 1784
1929 2788 1274
1928 2173 989
1927 1961 1022
1926 1710 1098
1925 1971 1015
LEGEND: FEE RECEIVED GOV'T COMP.-FREE
E.g.B.

Fig. 40.

The vital statistics law did not become effective in Kansas until July, 1911. Through this law the vital statistics division was made a part of the State Board of Health under the direct supervision of the secretary of the State Board of Health. The office personnel consists of state registrar, assistant registrar, one statistician, one certified copy clerk, one bookkeeper, one clerk whose duties are to file certificates in county and date order, giving credit to registrars forwarding certificates to this office, one tabulating machine operator, one index clerk, one stenographer and one office boy who is employed half time.

The division is charged with keeping an accurate record of births, deaths and marriages in the state of Kansas, and these reports furnish a source of information on which to base health activities. Vital statistics assist the physician, nurse, sanitary engineer and other health agencies in rendering more efficient service to the citizens of our state.

The expense of this division is entirely maintained by the receipt of ninety cents (90¢) from each $1 received from marriage licenses issued in the state, and the division receives no appropriation whatsoever from state funds. The fees for all certified copies of birth and death certificates, school or age certificates, search of records and ten per cent (10%) of all marriage license fees are deposited to the general fund of the state. From the ninety cents (90¢) collected from marriage license fees the division has purchased all office equipment, office supplies, paid for all printing, paid all salaries, paid its own postage and the expense of binding records in book form.

Therefore, while this division has operated without any direct expense to taxpayers it has benefited them in the past two years by returning to the state general fund $4,034.79 in marriage license fees and $2,693.75 in certified copy fees, a total of $6,728.54, an average of more than $280 per month.

No charge is made for recording a birth, death or marriage certificate, but a charge of fifty cents (50¢) is made for a certified copy of such certificate; a charge of $1 for certified copy of a marriage license and a charge of twenty-five cents (25¢) for a school or age certificate. At this date Kansas does not have a law registering divorces and a law similar to the law in force in most other states is recommended.

As the vital statistics law did not become effective until 1911, records of births or deaths occurring prior to that date are not available in this office, therefore, a special form is provided whereby births prior to 1911 may be recorded when the form is sent to this office properly filled out. No fee is charged for this service.

Kansas is comprised of 105 counties with each county divided into local registration districts. The city clerk in each incorporated city is the local registrar for the city and such additional territory as may be designated. The local registrar is required to record all birth and death certificates from his district, issue burial and removal permits and forward the original certificates to this office where they are placed in a permanent file.

For a state to be admitted to the federal government registration area it is necessary the state furnish evidence of securing the reporting of 90 per cent of births and deaths. Kansas was admitted to the registration area in 1914 for births and 1917 for deaths. Since these dates Kansas has maintained an enviable record for prompt and complete reporting of both births and deaths.

An average of 35,000 births and 20,000 deaths are recorded in this office each year. As these reports are a permanent record, the importance of accurate and complete information on each certificate is quite evident. Because of this lack of complete information on many certificates it is necessary for our office to mail some 4,500 queries each year in an effort to secure data which is necessary to complete these certificates in order that they will make a valuable record. Therefore, it is important that every item on a birth or death certificate be answered in full.

There were 105,500 birth, death and marriage certificates bound. A total of 496 volumes.

Five hundred and fifty-nine permits for the disinterment of dead human bodies were issued in the two years 1930-1931.

In the two years 1930-1931 there were 67,059 births, 38,232 deaths and 38,248 marriages indexed. A total of 181,787 cards written, since there are two cards to every marriage certificate.

Due to the fact many requests for certified copies of stillbirth certificates are being received, it has become necessary to handle these certificates in the same manner as births and deaths. Therefore, 2,276 stillbirth certificates, making 18 volumes, were numbered, indexed and bound.

In October, 1928, the division began mailing "Notification of Birth Registration" to parents of new-born babies. For the year 1930, 33,434 were issued. Of this number some 3,000 were returned for correction. In 1931, 33,439 notifications were issued, of which some 1,500 were returned. Many of the errors are due to carelessness in filling out the birth certificate, but as a general rule the majority of errors are in the spelling of the child or parents' name.

During the year 1930 there were issued 4,432 certified copies of births and deaths, for which this division received the sum of $1,342, which was turned over to the state general fund. Of this number 1,784 were issued free of charge.

For the year 1931, 4,702 certified copies of births and deaths were issued, for which was received $1,359. Of this number 1,984 were issued free of charge, an increase of 200 free copies over 1930.

Prior to 1925 only one certified copy of a death certificate was issued free. The 1925 legislature enacted a law providing that as many certified copies of birth, death and marriage certificates as were needed to secure government compensation be issued free of charge. Since that time pension copies have greatly increased.

FINANCIAL STATEMENT.

Following is a statement of receipts and disbursements of the Vital Statistics Division for the fiscal year ending June 30, 1930:

Cash on hand July 1, 1929		$14,243.58
Receipts:		
Received from Probate Judges	$21,144.00	
Received from marriage certified copies	51.00	
Received for certified copies birth and death	1,364.50	
Received for searching records and school certificates	.75	
Received from Holton Bank	.90	
		22,561.15
Total receipts		$36,804.73
Disbursements:		
Paid out for salaries	$13,448.17	
Paid out for office supplies	7,417.15	
Paid out state general fund 10% of marriage receipts	2,119.59	
Paid state all receipts from certified copies of births and deaths	1,364.50	
Paid state all receipts from searching records and school certificates,	.75	
Total disbursements		24,350.16
Balance on hand June 30, 1930		$12,454.57

Following is a statement of receipts and disbursements of the Vital Statistics Division for the fiscal year ending June 30, 1931:

Cash on hand July 1, 1930		$12,454.57
Receipts:		
Received from Probate Judges	$19,117.00	
Received from marriage certified copies	35.00	
Received for certified copies birth and death	1,327.50	
Received for searching records and school certificates	1.00	
		20,480.50
Total receipts		$32,935.07
Disbursements:		
Paid out for salaries	$13,500.00	
Paid out for office supplies	7,388.63	
Paid out state general fund 10% of marriage receipts	1,915.20	
Paid state all receipts from birth and death certified copies	1,327.50	
Paid state all receipts for searching records and school certificates	1.00	
Total disbursements		24,132.33
Balance on hand June 30, 1931		$8,802.74

Following is a statement of receipts and disbursements of the Vital Statistics Division for the fiscal year ending June 30, 1932:

Cash on hand July 1, 1931		$8,802.74
Receipts:		
Received from probate judges	$18,028.00	
Received from marriage certified copies	32.00	
Received for certified copies, birth and death certificates	1,515.00	
Received for searching records and school certificates	91.25	
		19,666.25
Total receipts		$28,468.99
Disbursements:		
Paid out for office salaries	$13,448.38	
Paid out for office supplies	5,541.27	
Paid state general fund 10% of marriage receipts	1,720.80	
Paid state all receipts for certified copies birth and death cert.,	1,404.00	
Paid state all receipts for searching record and school certificates,	91.25	
Marriage fees in closed bank	852.00	
Certified copy fees in closed bank	111.00	
Total disbursements		23,168.70
Balance on hand June 30, 1932		$5,300.29

In submitting the financial statement for the fiscal years 1930 and 1931 is also included report for fiscal year ending June 30, 1932. This is offered for comparison to show the steady decrease in revenue to maintain the division. As shown in the statement, the fees from marriage licenses for the fiscal year 1930 (including fees for certified copies of marriage licenses) was $21,195. In 1931, the fees amounted to $19,152, while the total receipts for the fiscal year ending June 30, 1932, were $18,060. As 10 per cent of these fees are paid to the state general fund it leaves a net revenue for this division of $19,075.31 in 1930, $17,236.80 in 1931 and $16,263 for 1932.

With this decrease in revenue the expenses for postage and printing of certified copies has greatly increased. In addition to decreased revenue and increased expenses the division had $963 on deposit in the International Mortgage Trust Company, which closed February 15, 1932. Of this sum $85.20 is due the state on marriage license fees and $111 for certified copies of birth and death certificates.

Respectfully submitted,

C. L. Miller, M.D.,
State Registrar of Vital Statistics.

TABLE No. 45.—Population, deaths and death rates per 1,000 population, by counties, for 1930 and 1931 (stillbirths not included).

Counties and Cities.	1930.			1931.		
	Population.	Deaths.	Death rate.	Population.	Deaths.	Death rate.
State totals	1,880,999	19,583	10.4	1,880,999	18,648	9.9
Allen, except	11,669	114	9.7	11,669	97	8.3
Iola	7,159	94	13.1	7,159	95	13.2
Humboldt	2,557	33	12.9	2,557	27	10.5
Anderson	13,359	118	8.8	13,359	110	8.2
Atchison, except	10,997	80	7.2	10,997	73	6.6
Atchison City	13,019	199	15.2	13,019	195	14.8
Barber	10,149	65	6.4	10,149	52	5.1
Barton, except	14,212	100	7.0	14,212	90	6.3
Great Bend	5,559	119	21.4	5,559	102	18.3
Bourbon, except	11,645	90	7.7	11,645	88	7.5
Fort Scott	10,746	223	21.6	10,746	225	20.9
Brown, except	13,213	84	6.3	13,213	76	5.7
Hiawatha	3,305	38	11.4	3,305	43	13.0
Horton	4,031	46	11.4	4,031	72	17.8
Butler, except	21,530	99	4.5	21,530	96	4.4
Augusta	4,033	39	9.6	4,033	31	7.7
Eldorado	10,305	118	11.4	10,305	108	10.4
Chase	6,944	46	6.6	6,944	53	7.6
Chautauqua	10,340	95	9.1	10,340	79	7.6
Cherokee, except	18,839	159	8.4	18,839	185	9.8
Galena	4,736	69	14.5	4,736	66	13.9
Baxter Springs	4,551	57	13.5	4,551	53	11.6
Columbus	3,237	42	12.9	3,237	51	15.7
Cheyenne	6,946	54	7.7	6,946	44	6.3
Clark	4,796	37	7.7	4,796	26	5.4
Clay, except	10,148	82	8.1	10,148	83	8.2
Clay Center	4,401	60	13.6	4,401	72	16.3
Cloud, except	12,215	128	10.4	12,215	100	8.2
Concordia	5,791	125	21.5	5,791	119	20.5
Coffey	13,597	122	8.9	13,597	119	8.7
Comanche	4,648	43	9.2	4,648	39	8.4
Cowley, except	17,509	114	6.5	17,509	129	7.4
Arkansas City	13,940	146	10.5	13,940	144	10.3
Winfield	9,410	154	16.3	9,410	154	16.4
Crawford, except	25,092	277	11.0	25,092	276	10.9
Pittsburg	18,051	166	9.2	18,051	160	8.9
Girard	2,433	34	13.9	2,433	46	18.9
Frontenac	2,134	18	8.4	2,134	13	6.1
Mulberry	1,595	15	9.4	1,595	14	8.8
Decatur	8,874	86	9.7	8,874	79	8.9
Dickinson, except	15,723	131	8.3	15,723	108	6.9
Abilene	5,624	85	15.1	5,624	70	12.4
Herington	4,522	35	7.7	4,522	40	8.8
Doniphan	13,946	119	8.5	13,946	136	9.7
Douglas, except	11,417	84	7.3	11,417	75	6.6
Lawrence	13,708	190	13.8	13,708	170	12.4
Edwards	7,289	58	7.9	7,289	57	7.8
Elk	9,206	80	8.7	9,206	59	6.4
Ellis, except	11,335	73	6.4	11,335	72	6.3
Hays	4,565	125	27.3	4,565	107	23.4
Ellsworth	10,123	113	11.1	10,123	105	10.3
Finney, except	4,829	27	5.6	4,829	25	5.2
Garden City	6,177	98	15.8	6,177	83	13.4
Ford, except	10,583	177	16.7	10,583	131	12.3
Dodge City	10,060	52	5.2	10,060	117	11.6
Franklin, except	12,442	142	11.4	12,442	102	8.2
Ottawa	9,562	134	14.0	9,562	129	13.4
Geary, except	6,919	37	5.3	6,919	30	4.3
Junction City	7,308	102	13.9	7,308	83	11.3
Gove	6,919	37	5.3	6,919	57	10.1
Graham	7,768	48	6.1	7,768	63	8.1
Grant	3,092	9	2.9	3,092	10	3.2
Gray	6,213	34	5.4	6,213	23	3.7
Greeley	1,709	10	5.8	1,709	16	9.4
Greenwood, except	15,616	81	5.1	15,616	100	6.4
Eureka	3,700	52	14.0	3,700	53	14.3
Hamilton	3,325	29	8.7	8,325	30	9.0

TABLE No. 45.—Population, deaths and death rates per 1,000 population, by counties, for 1930 and 1931 (stillbirths not included)—CONTINUED.

COUNTIES AND CITIES.	1930.			1931.		
	Population.	Deaths.	Death rate.	Population.	Deaths.	Death rate.
Harper, except	9,903	106	10.7	9,903	72	7.3
Anthony	2,914	37	12.6	2,914	61	20.9
Harvey, except	11,085	172	15.5	11,085	169	15.2
Newton	11,031	152	13.7	11,031	148	13.4
Haskell	2,805	23	8.1	2,805	14	4.9
Hodgeman	4,156	25	6.0	4,156	28	6.7
Jackson, except	12,073	96	7.9	12,073	82	6.8
Holton	2,705	47	17.3	2,705	38	14.0
Jefferson	14,009	137	9.7	14,009	125	8.9
Jewell	14,458	123	8.5	14,458	98	6.8
Johnson, except	23,470	192	8.2	23,470	188	8.0
Olathe	3,652	36	9.8	3,652	56	15.3
Kearny	3,195	23	7.1	3,195	27	8.4
Kingman	11,732	100	8.5	11,732	74	6.3
Kiowa	6,034	27	4.4	6,034	33	5.5
Labette, except	16,415	183	11.1	16,415	185	11.3
Parsons	14,852	223	15.0	14,852	194	13.1
Lane	3,371	12	3.5	3,371	22	6.5
Leavenworth, except	24,931	352	14.1	24,931	365	14.6
Leavenworth City	17,449	274	15.7	17,449	255	14.6
Lincoln	9,606	78	8.1	9,606	78	8.1
Linn	13,525	147	10.8	13,525	120	8.8
Logan	4,136	26	6.3	4,136	19	4.6
Lyon, except	15,486	99	6.3	15,486	91	5.9
Emporia	13,687	202	14.7	13,687	178	13.0
Marion	20,723	156	7.5	20,723	169	8.1
Marshall, except	19,017	166	8.7	19,017	168	8.8
Marysville	4,031	48	11.9	4,031	43	10.6
McPherson, except	17,452	96	5.5	17,452	116	6.6
McPherson City	6,138	92	14.9	6,138	75	12.2
Meade	6,858	30	4.3	6,858	33	4.8
Miami, except	13,042	237	18.1	13,042	211	16.1
Osawatomie	4,440	56	12.6	4,440	46	10.3
Paola	3,759	56	14.8	3,759	44	11.7
Mitchell, except	9,274	71	7.6	9,274	73	7.9
Beloit	3,485	58	16.6	3,485	73	20.9
Montgomery, except	15,401	122	7.9	15,401	129	8.4
Independence	12,773	175	13.7	12,773	138	10.8
Coffeyville	16,188	233	14.3	16,188	163	10.0
Cherryvale	4,242	39	9.1	4,242	41	9.7
Caney	2,792	31	11.1	2,792	35	12.5
Morris, except	8,899	44	4.9	8,899	44	4.9
Council Grove	2,851	36	12.6	2,851	27	9.5
Morton	4,092	39	9.5	4,092	16	3.9
Nemaha	18,337	171	9.3	18,337	166	9.0
Neosho, except	13,077	101	7.7	13,077	109	8.3
Chanute	9,651	142	14.7	9,651	151	15.6
Ness	8,353	55	6.5	8,353	56	6.7
Norton	11,695	161	13.7	11,695	159	13.6
Osage	17,502	165	9.4	17,502	166	9.5
Osborne	11,551	103	8.9	11,551	102	8.8
Ottawa	9,824	98	9.9	9,824	78	7.9
Pawnee, except	6,977	81	11.6	6,977	99	14.2
Larned	3,524	75	21.2	3,524	48	13.6
Phillips	12,139	99	8.1	12,139	105	8.6
Pottawatomie	15,858	125	7.8	15,858	113	7.1
Pratt, except	6,953	37	5.3	6,953	43	6.2
Pratt City	6,322	81	12.8	6,322	57	9.0
Rawlins	7,365	50	6.7	7,365	67	9.1
Reno, except	20,671	158	7.6	21,671	167	8.1
Hutchinson	27,080	303	11.1	27,080	310	11.4
Republic	14,741	137	9.3	14,741	121	8.2
Rice, except	10,134	111	10.9	10,134	84	8.3
Lyons	2,937	47	16.0	2,937	44	14.8
Riley, except	9,758	94	9.6	9,758	90	9.2
Manhattan	10,101	110	10.8	10,101	110	10.8
Rooks	9,534	70	7.3	9,534	83	8.7
Rush	8,887	61	6.8	8,887	83	9.3
Russell	11,044	71	6.4	11,044	72	6.5
Saline, except	9,171	67	7.3	9,171	57	6.2
Salina	20,156	239	11.8	20,156	233	11.5

TABLE No. 45.—Population, deaths and death rates per 1,000 population, by counties, for 1930 and 1931 (stillbirths not included)—CONCLUDED.

COUNTIES AND CITIES.	1930.			1931.		
	Population.	Deaths.	Death rate.	Population.	Deaths.	Death rate.
Scott	3,976	26	6.5	3,976	36	9.0
Sedgwick, except	25,180	149	5.9	25,180	171	6.7
Wichita	111,039	1,334	12.0	111,039	1,128	10.1
Seward, except	2,781	18	6.4	2,781	12	4.3
Liberal	5,291	94	17.7	5,291	88	16.6
Shawnee, except	21,804	401	18.3	21,804	399	18.3
Topeka	64,005	898	14.0	64,005	824	12.28
Sheridan	6,033	25	4.2	6,033	30	4.9
Sherman, except	3,778	11	2.9	3,778	18	4.8
Goodland	3,622	61	16.8	3,622	53	14.6
Smith	13,518	120	8.8	13,518	127	9.4
Stafford	11,567	80	6.9	11,567	87	7.5
Stanton	2,150	3	1.39	2,150	9	4.2
Stevens	4,648	25	5.3	4,648	34	7.3
Sumner, except	21,555	177	8.2	21,555	158	7.3
Wellington	7,402	121	16.3	7,402	99	13.4
Thomas	7,307	54	7.3	7,307	39	5.3
Trego	6,466	35	5.4	6,466	32	4.9
Wabaunsee	10,840	79	7.3	10,840	67	6.2
Wallace	2,882	12	4.1	2,882	17	5.9
Washington	17,118	116	6.7	17,118	156	9.1
Wichita	2,579	17	6.5	2,579	19	7.3
Wilson, except	12,046	84	6.9	12,046	94	7.8
Fredonia	3,439	35	10.1	3,439	47	13.6
Neodesha	3,160	49	15.5	3,160	31	9.8
Woodson	8,498	74	8.7	8,498	91	10.7
Wyandotte, except	19,337	153	7.9	19,337	143	7.4
Kansas City	122.327	1,678	13.7	122.327	1.568	12.8

TABLE No. 46.—Number of births, deaths of children under one year, and infant mortality rate, by counties, for 1930 and 1931 (stillbirths not included).

Counties and Cities.	1930.			1931.		
	Births.	Deaths under 1 year.	Infant mortality rate.	Births.	Deaths under 1 year.	Infant mortality rate.
State totals	33,984	1,768	52.1	33,075	1,586	47.9
Allen, except	214	4	18.6	206	4	19.4
Iola	127	11	86.6	95	8	94.7
Humboldt	51	3	58.8	44	2	45.4
Anderson	188	8	42.5	186	7	37.6
Atchison, except	118	8	67.7	117	3	25.6
Atchison City	283	12	42.4	281	13	46.2
Barber	177	7	39.5	119	4	33.6
Barton, except	239	9	37.6	204	13	63.7
Great Bend	211	11	52.1	227	11	48.4
Bourbon, except	167	9	53.8	139	5	35.9
Fort Scott	238	21	88.2	223	17	76.2
Brown, except	172	8	46.5	126	4	31.7
Hiawatha	44	2	45.4	31	2	64.5
Horton	137	2	14.5	122	9	65.5
Butler, except	273	7	25.6	241	9	37.3
Augusta	83	8	96.3	84	6	71.4
El Dorado	243	19	78.1	239	9	37.6
Chase	128	5	39.0	106	2	18.8
Chautauqua	191	17	89.0	175	8	45.7
Cherokee, except	318	16	50.3	315	19	60.3
Cherokee	86	5	58.1	89	5	56.1
Baxter Springs	78	9	115.3	71	2	28.1
Columbus	51	2	39.2	57	0	0
Cheyenne	192	9	46.8	182	7	38.4
Clark	116	7	60.3	123	1	8.1
Clay, except	155	6	38.7	152	2	13.1
Clay Center	117	2	17.1	97	4	41.2
Cloud, except	230	12	52.1	202	9	44.5
Concordia	174	14	80.4	155	6	38.7
Coffey	209	11	52.6	209	9	43.0
Comanche	111	3	27.0	99	7	70.7
Cowley, except	217	5	23.0	222	7	31.5
Arkansas City	264	11	41.6	324	10	33.9
Winfield	230	11	47.8	224	14	62.5
Crawford, except	337	22	65.2	361	19	52.6
Pittsburg	218	14	64.2	236	9	38.1
Girard	34	1	29.4	30	3	10.0
Frontenac	24	1	41.6	30	2	66.6
Mulberry	36	2	55.5	29	5	13.7
Decatur	168	11	65.4	186	4	21.5
Dickinson, except	231	12	51.9	209	5	23.9
Abilene	106	5	47.1	131	4	30.5
Herington	72	2	27.7	74	2	27.0
Doniphan	226	11	48.6	221	10	45.2
Douglas, except	109	3	27.5	123	6	48.8
Lawrence	276	10	36.2	281	14	49.8
Edwards	123	6	81.3	95	2	21.0
Elk	112	1	8.9	122	7	57.3
Ellis, except	271	27	99.6	313	16	51.1
Hays	313	25	79.8	303	16	52.8
Ellsworth	181	12	66.2	198	7	40.4
Finney, except	97	7	72.1	71	3	42.2
Garden City	226	16	70.7	278	9	32.4
Ford, except	392	19	48.4	266	19	71.4
Dodge City	139	6	43.1	250	17	68.0
Franklin, except	214	10	46.7	166	9	54.2
Ottawa	180	6	33.3	169	6	35.5
Geary, except	120	4	33.3	124	5	40.3
Junction City	169	8	47.3	151	4	26.5
Gove	183	10	54.6	179	16	89.3
Graham	214	6	28.0	202	14	69.3
Grant	77	2	25.9	50	1	20.0
Gray	157	5	31.8	170	3	17.6
Greeley	21	0	0	28	4	142.8
Greenwood, except	237	5	21.1	225	7	31.1
Eureka	80	2	25.0	74	6	81.0
Hamilton	62	3	48.3	101	10	99.0
Harper, except	187	9	48.1	169	7	41.4
Anthony	140	4	28.5	131	10	76.3

TABLE No. 46.—Number of births, deaths of children under one year, and infant mortality rate, by counties, for 1930 and 1931 (stillbirths not included)—CONTINUED.

COUNTIES AND CITIES.	1930.			1931.		
	Births.	Deaths under 1 year.	Infant mortality rate.	Births.	Deaths under 1 year.	Infant mortality rate.
Harvey, except	136	5	36.7	134	4	29.8
Newton	399	17	42.6	366	16	43.7
Haskell	59	10	169.4	57	2	35.1
Hodgeman	86	4	46.5	84	6	71.4
Jackson, except	161	12	74.5	161	8	49.7
Holton	34	0	0	42	1	23.8
Jefferson	195	11	56.4	194	8	41.2
Jewell	251	8	31.8	263	9	34.2
Johnson, except	295	13	44.0	292	11	37.7
Olathe	43	1	23.2	55	4	72.7
Kearny	79	1	12.6	76	5	65.7
Kingman	224	8	35.7	193	3	15.5
Kiowa	115	5	43.4	129	6	46.5
Labette, except	284	9	31.6	309	18	58.2
Parsons	205	13	63.4	205	12	58.5
Lane	55	1	18.1	60	3	50.0
Leavenworth, except	237	9	37.9	193	15	77.7
Leavenworth City	299	21	70.2	297	22	74.1
Lincoln	204	9	44.1	165	8	48.5
Linn	199	7	35.1	184	9	48.9
Logan	79	6	75.9	89	1	11.2
Lyon, except	231	7	30.3	185	6	32.4
Emporia	341	22	64.5	317	8	25.2
Marion	410	15	36.5	396	21	53.0
Marshall, except	329	8	24.3	294	12	40.8
Marysville	87	7	80.4	90	5	55.5
McPherson, except	173	2	11.5	179	5	27.9
McPherson City	198	8	40.4	209	7	33.5
Meade	93	6	64.5	121	3	24.8
Miami, except	191	11	57.5	164	9	54.9
Osawatomie	82	6	73.1	88	7	79.5
Paola	56	3	53.5	54	2	37.0
Mitchell, except	103	3	29.1	122	12	106.5
Beloit	68	7	102.9	103	6	58.2
Montgomery, except	278	14	50.3	232	17	73.3
Independence	237	17	71.7	224	9	40.2
Coffeyville	342	28	81.8	302	9	29.8
Cherryvale	68	3	44.1	72	3	41.6
Caney	45	3	66.6	51	2	39.2
Morris, except	96	5	52.0	98	4	40.8
Council Grove	51	2	58.8	45	4	88.9
Morton	107	7	65.4	101	4	39.6
Nemaha	365	22	60.2	374	15	40.1
Neosho, except	173	10	57.8	212	11	51.9
Chanute	194	16	82.4	180	7	38.9
Ness	206	7	33.9	189	10	52.9
Norton	227	11	48.4	262	11	41.9
Osage	256	13	50.7	273	10	36.6
Osborne	197	9	45.6	188	11	58.5
Ottawa	170	8	47.0	158	7	44.3
Pawnee, except	75	3	40.0	70	4	57.1
Larned	119	8	67.2	122	9	73.8
Phillips	169	10	59.1	260	12	46.1
Pottawatomie	263	15	57.0	237	9	37.9
Pratt, except	89	5	56.1	89	7	78.6
Pratt City	178	13	73.0	112	5	44.6
Rawlins	160	5	31.2	172	9	52.3
Reno, except	239	10	41.8	252	7	27.8
Hutchinson	644	19	29.5	571	23	40.3
Republic	259	9	34.7	234	11	47.0
Rice, except	187	4	21.3	184	6	32.6
Lyons	65	5	76.9	81	4	49.4
Riley, except	108	9	83.3	125	6	49.2
Manhattan	205	6	29.2	209	6	28.7
Rooks	193	13	67.3	169	11	65.1
Rush	173	10	67.8	219	17	77.6
Russell	217	5	23.0	182	9	49.4
Saline, except	106	11	103.7	84	1	11.9
Salina	468	26	55.5	416	23	55.3
Scott	119	8	67.2	119	7	58.8

TABLE No. 46.—Number of births, deaths of children under one year, and infant mortality rate, by counties, for 1930 and 1931 (stillbirths not included)—CONCLUDED.

COUNTIES AND CITIES.	1930.			1931.		
	Births.	Deaths under 1 year.	Infant mortality rate.	Births.	Deaths under 1 year.	Infant mortality rate.
Sedgwick, accept	325	15	46.1	273	11	40.2
Wichita	2,284	132	57.5	2,053	88	42.8
Seward, except	39	2	51.2	59	0	0
Liberal	155	11	70.9	164	9	54.9
Shawnee, except	238	16	67.2	250	22	88.0
Topeka	1,232	67	54.3	1,127	54	47.9
Sheridan	132	5	37.8	144	3	20.8
Sherman, except	70	3	28.5	79	2	25.3
Goodland	69	9	130.4	127	9	70.8
Smith	247	9	36.4	233	12	51.5
Stafford	152	5	32.8	172	9	52.3
Stanton	36	0	0	42	2	47.6
Stevens	78	4	51.2	109	10	91.7
Sumner, except	328	24	73.1	308	6	19.5
Wellington	168	10	59.5	148	13	87.8
Thomas	163	15	92.0	161	8	49.7
Trego	111	7	63.0	111	5	45.0
Wabaunsee	176	2	11.3	155	9	58.0
Wallace	62	3	48.3	58	1	17.2
Washington	246	7	28.4	288	14	48.6
Wichita	17	3	176.4	37	4	108.1
Wilson, except	175	9	51.4	186	6	22.2
Fredonia	58	4	68.9	68	5	73.5
Neodesha	85	1	11.7	84	3	35.7
Woodson	119	9	75.6	168	9	53.6
Wyandotte, except	231	15	64.9	190	6	31.6
Kansas City	2,365	156	65.9	2,314	153	66.1

TABLE No. 47.—Births, by counties, by sex, color and parent nativity, for 1930.

Counties and Cities.	Sex.		Color.			Nativity.			
						Father.		Mother.	
	Male.	Female.	White.	Black.	Indian.	Native.	Foreign.	Native.	Foreign.
Allen, except	115	99	212	2	0	206	8	206	8
Iola	68	59	115	12	0	126	1	126	1
Humboldt	29	22	49	2	0	49	2	49	2
Anderson	89	99	187	1	0	184	4	184	4
Atchison, except	68	50	115	3	0	117	1	117	1
Atchison City	149	134	259	24	0	267	16	270	13
Barber	92	85	174	3	0	173	4	173	4
Barton, except	139	100	234	5	0	221	18	221	18
Great Bend	109	102	207	4	0	201	10	207	4
Bourbon, except	89	78	164	3	0	166	1	166	1
Fort Scott	120	118	234	4	0	236	2	235	3
Brown, except	100	72	166	1	5	168	4	171	1
Hiawatha	24	20	41	3	0	43	1	44	0
Horton	69	68	133	3	1	114	23	121	16
Butler, except	153	120	273	0	0	262	11	259	14
Augusta	35	48	83	0	0	75	8	78	5
El Dorado	140	103	236	7	0	237	6	235	8
Chase	63	65	127	1	0	124	4	125	3
Chautauqua	82	109	190	1	0	190	1	191	0
Cherokee, except	156	162	315	3	0	312	6	315	3
Galena	46	40	84	2	0	83	3	84	2
Baxter Springs	46	32	75	3	0	78	0	78	0
Columbus	25	26	51	0	0	51	0	51	0
Cheyenne	105	87	192	0	0	177	15	188	4
Clark	58	58	116	0	0	115	1	114	2
Clay, except	79	76	155	0	0	146	9	151	4
Clay Center	48	69	117	0	0	115	2	117	0
Cloud, except	117	113	230	0	0	227	3	228	2
Concordia	94	80	173	1	0	172	2	173	1
Coffey	111	98	209	0	0	203	6	206	3
Comanche	65	46	111	0	0	108	3	108	3
Cowley, except	106	111	217	0	0	209	8	207	10
Arkansas City	142	122	251	6	7	252	12	251	13
Winfield	117	113	226	3	1	223	7	224	6
Crawford, except	166	171	334	3	0	296	41	317	20
Pittsburg	112	106	213	5	0	211	7	214	4
Girard	18	16	33	1	0	34	0	32	2
Frontenac	12	12	24	0	0	17	7	22	2
Mulberry	16	20	36	0	0	32	4	31	5
Decatur	82	86	168	0	0	165	3	168	0
Dickinson, except	117	114	231	0	0	225	6	226	5
Abilene	50	56	101	5	0	104	2	103	3
Herington	36	36	70	2	0	64	8	64	8
Doniphan	126	100	213	13	0	223	3	222	4
Douglas, except	51	58	107	2	0	105	4	106	3
Lawrence	135	141	259	16	1	269	7	272	4
Edwards	61	62	122	1	0	119	4	116	7
Elk	54	58	112	0	0	110	2	111	1
Ellis, except	139	132	271	0	0	246	25	246	25
Hays	151	162	310	3	0	285	28	299	14
Ellsworth	99	82	179	2	0	165	16	168	13
Finney, except	53	44	96	1	0	69	28	76	21
Garden City	123	113	230	6	0	221	15	223	13
Ford, except	216	176	389	3	0	359	33	370	22
Dodge City	69	70	137	2	0	136	3	138	1
Franklin, except	105	109	214	0	0	207	7	208	6
Ottawa	89	91	169	11	0	177	3	178	2
Geary, except	66	54	100	20	0	116	4	117	3
Junction City	77	92	165	4	0	161	8	163	6
Gove	98	85	182	1	0	161	22	170	13
Graham	115	99	203	11	0	203	11	207	7
Grant	37	40	77	0	0	77	0	77	0
Gray	78	79	155	2	0	145	12	149	8
Greeley	13	8	21	0	0	21	0	21	0
Greenwood, except	124	113	237	0	0	236	1	237	0
Eureka	38	42	80	0	0	77	3	79	1
Hamilton	38	24	62	0	0	60	2	61	1
Harper, except	103	84	187	0	0	181	6	181	6
Anthony	71	69	139	1	0	138	2	140	0

TABLE No. 47.—Births, by counties, by sex, color and parent nativity, for 1930—CONTINUED.

COUNTIES AND CITIES.	Sex.		Color.			Nativity.			
						Father.		Mother.	
	Male.	Female.	White.	Black.	Indian.	Native.	Foreign.	Native.	Foreign.
Harvey, except	76	60	136	0	0	128	8	130	6
Newton	202	197	386	12	1	368	31	369	30
Haskell	30	29	59	0	0	53	6	54	5
Hodgeman	48	38	84	2	0	80	6	81	5
Jackson, except	91	70	151	1	9	156	5	158	3
Holton	14	20	33	1	0	33	1	32	2
Jefferson	100	95	190	5	0	194	1	193	2
Jewell	133	118	251	0	0	250	1	250	1
Johnson, except	164	131	290	5	0	279	16	280	15
Olathe	31	12	38	5	0	40	3	40	3
Kearney	42	37	79	0	0	75	4	78	1
Kingman	124	100	224	0	0	216	8	219	5
Kiowa	56	59	115	0	0	112	3	112	3
Labette, except	144	140	275	8	1	283	1	280	4
Parsons	101	104	191	14	0	189	16	191	14
Lane	30	25	55	0	0	51	4	53	2
Leavenworth, except	121	116	217	19	1	233	4	233	4
Leavenworth City	156	143	273	26	0	282	17	289	10
Lincoln	108	96	204	0	0	197	7	199	5
Linn	110	89	196	3	0	196	3	199	0
Logan	42	37	76	3	0	76	3	76	3
Lyon, except	126	105	231	0	0	219	12	219	12
Emporia	166	175	324	17	0	322	19	326	15
Marion	209	201	409	1	0	362	48	380	30
Marshall, except	173	156	329	0	0	313	16	312	17
Marysville	47	40	87	0	0	87	0	87	0
McPherson, except	94	79	173	0	0	158	15	162	11
McPherson	97	101	198	0	0	196	2	195	3
Meade	53	40	93	0	0	93	0	91	2
Miami, except	100	91	191	0	0	188	3	189	2
Osawatomie	31	51	76	6	0	78	4	79	3
Paola	25	31	51	5	0	56	0	56	0
Mitchell, except	43	60	103	0	0	101	2	102	1
Beloit	35	33	68	0	0	68	0	67	1
Montgomery, except	146	132	272	6	0	270	8	271	7
Independence	131	106	223	14	0	228	9	232	5
Coffeyville	164	178	303	38	1	326	16	335	7
Cherryvale	43	25	67	1	0	66	2	65	3
Caney	29	16	45	0	0	45	0	45	0
Morris, except	47	49	96	0	0	95	1	94	2
Council Grove	19	32	49	2	0	50	1	49	2
Morton	50	57	107	0	0	107	0	104	3
Nemaha	198	167	362	3	0	354	11	354	11
Neosho, except	91	82	173	0	0	170	3	170	3
Chanute	97	97	185	8	1	176	18	177	17
Ness	103	103	205	1	0	189	17	188	18
Norton	131	96	227	0	0	224	3	224	3
Osage	143	113	256	0	0	246	10	249	7
Osborne	109	88	197	0	0	191	6	194	3
Ottawa	91	79	169	1	0	164	6	167	3
Pawnee, execpt	44	31	75	0	0	71	4	72	3
Larned	69	50	113	6	0	113	6	113	6
Phillips	89	80	169	0	0	167	2	167	2
Pottawatomie	125	138	262	0	1	256	7	258	5
Pratt, except	48	41	89	0	0	87	2	86	3
Pratt City	99	79	174	4	0	176	2	175	3
Rawlins	81	79	160	0	0	150	10	156	4
Reno, except	110	129	238	1	0	230	9	232	7
Hutchinson	343	301	632	12	0	622	22	619	25
Republic	134	125	259	0	0	248	11	254	5
Rice, except	101	86	187	0	0	181	6	183	4
Lyons	33	32	64	1	0	53	12	53	12
Riley, except	69	39	108	0	0	105	3	104	4
Manhattan	107	98	195	10	0	197	8	198	7
Rooks	94	99	193	0	0	186	7	189	4
Rush	72	101	173	0	0	165	8	165	8
Russell	102	115	214	3	0	192	25	200	17
Saline, except	58	48	106	0	0	102	4	104	2
Salina	233	235	457	11	0	448	20	453	15

TABLE No. 47.—Births, by counties, by sex, color and parent nativity, for 1930—Concluded.

Counties and Cities.	Sex.		Color.			Nativity.			
						Father.		Mother.	
	Male.	Female.	White.	Black.	Indian.	Native.	Foreign.	Native.	Foreign.
Scott	58	61	119	0	0	115	4	111	8
Sedgwick, except	154	171	325	0	0	309	16	317	8
Wichita	1,163	1,121	2,182	100	2	2,197	87	2,209	75
Seward, except	25	14	39	0	0	36	3	37	2
Liberal	87	68	155	0	0	152	3	152	3
Shawnee, except	130	108	228	10	0	223	15	227	11
Topeka	654	578	1,137	92	3	1,124	108	1,150	82
Sheridan	63	69	131	0	1	129	3	129	3
Sherman, except	34	36	70	0	0	67	3	68	2
Goodland	39	30	69	0	0	63	6	62	7
Smith	134	113	247	0	0	243	4	244	3
Stafford	65	87	152	0	0	148	4	151	1
Stanton	21	15	36	0	0	36	0	36	0
Stevens	49	29	78	0	0	78	0	77	1
Sumner, except	172	156	324	3	1	318	10	319	9
Wellington	79	89	162	5	1	159	9	158	10
Thomas	86	76	163	0	0	157	6	162	1
Trego	66	45	111	0	0	90	21	97	14
Wabaunsee	98	78	169	7	0	168	8	172	4
Wallace	33	29	61	1	0	61	1	62	0
Washington	126	120	246	0	0	241	5	241	5
Wichita	8	9	17	0	0	16	1	16	1
Wilson, except	86	89	175	0	0	172	3	174	1
Fredonia	32	26	57	1	0	57	1	57	1
Neodesha	42	43	85	0	0	85	0	85	0
Woodson	59	60	119	0	0	118	1	119	0
Wyandotte, except	120	111	215	16	0	215	16	213	18
Kansas City	1,260	1,105	2,060	305	0	2,088	277	2,141	224

TABLE No. 48.—Births, by counties, by sex, color and parent nativity, for 1931.

Counties and Cities.	Sex.		Color.			Nativity.			
						Father.		Mother.	
	Male.	Female.	White.	Black.	Indian.	Native.	Foreign.	Native.	Foreign.
Allen, except	104	102	205	1	0	197	9	200	6
Iola	41	54	87	8	0	95	0	95	0
Humboldt	23	21	41	3	0	44	0	44	0
Anderson	86	100	186	0	0	183	3	183	3
Atchison, except	61	56	115	2	0	114	3	116	1
Atchison City	147	134	255	26	0	270	11	270	11
Barber	62	57	119	0	0	118	1	117	2
Barton, except	118	86	195	9	0	184	20	191	13
Great Bend	112	115	220	7	0	219	8	219	8
Bourbon, except	69	70	139	0	0	139	0	139	0
Fort Scott	110	113	216	7	0	220	3	220	3
Brown, except	60	66	121	1	4	124	2	124	2
Hiawatha	15	16	29	2	0	30	1	30	1
Horton	68	54	116	5	1	103	19	105	17
Butler, except	121	120	241	0	0	233	8	233	8
Augusta	36	48	84	0	0	82	2	83	1
El Dorado	121	118	236	3	0	230	9	235	4
Chase	51	55	106	0	0	97	9	97	9
Chautauqua	91	84	174	1	0	175	0	175	0
Cherokee, except	167	148	314	1	0	301	14	309	6
Galena	48	41	87	2	0	85	4	86	3
Baxter Springs	35	36	70	1	0	71	0	70	1
Columbus	36	21	56	1	0	56	1	57	0
Cheyenne	88	94	182	0	0	167	15	175	7
Clark	60	63	123	0	0	121	2	122	1
Clay, except	65	87	152	0	0	149	3	151	1
Clay Center	56	41	96	1	0	95	2	97	0
Cloud, except	118	84	202	0	0	197	5	199	3
Concordia	85	70	155	0	0	155	0	154	1
Coffey	105	104	209	0	0	207	2	208	1
Comanche	50	49	99	0	0	99	0	99	0
Cowley, except	105	117	219	3	0	216	6	217	5
Arkansas City	167	157	308	10	6	313	11	308	16
Winfield	110	114	219	5	0	218	6	219	5
Crawford, except	188	173	350	11	0	320	41	337	24
Pittsburg	130	106	232	4	0	230	6	231	5
Girard	12	18	30	0	0	29	1	28	2
Frontenac	10	20	30	0	0	24	6	26	4
Mulberry	15	14	29	0	0	27	2	27	2
Decatur	99	87	186	0	0	184	2	181	5
Dickinson, except	98	111	209	0	0	200	9	200	9
Abilene	67	64	128	3	0	129	2	126	5
Herington	39	35	73	1	0	58	16	64	10
Doniphan	112	109	210	11	0	221	0	221	0
Douglas, except	63	60	118	5	0	119	4	120	3
Lawrence	141	140	261	20	0	267	14	271	10
Edwards	55	40	94	0	1	90	5	92	3
Elk	65	57	122	0	0	119	3	118	4
Ellis, except	155	158	311	2	0	283	30	285	28
Hays	159	144	298	5	0	281	22	289	14
Ellsworth	101	97	197	1	0	172	26	178	20
Finney, except	31	40	71	0	0	57	14	61	10
Garden City	148	130	274	3	1	253	25	261	17
Ford, except	143	123	266	0	0	237	29	242	24
Dodge City	129	121	246	4	0	247	3	246	4
Franklin, except	93	73	166	0	0	162	4	163	3
Ottawa	81	88	160	9	0	166	3	168	1
Geary, except	61	63	114	10	0	114	10	120	4
Junction City	62	89	143	8	0	144	7	147	4
Gove	81	98	178	0	1	162	17	166	13
Graham	106	96	192	10	0	197	5	200	2
Grant	28	22	50	0	0	48	2	50	0
Gray	74	96	169	1	0	158	12	165	5
Greeley	9	19	28	0	0	28	0	28	0
Greenwood, except	109	116	224	1	0	218	7	220	5
Eureka	35	39	73	1	0	73	1	72	2
Hamilton	43	58	100	1	0	98	3	98	3
Harper, except	89	80	169	0	0	167	2	169	0
Anthony	57	74	131	0	0	131	0	131	0

TABLE No. 48.—Births, by counties, by sex, color and parent nativity, for 1931—CONTINUED.

COUNTIES AND CITIES.	Sex.		Color.			Nativity.			
						Father.		Mother.	
	Male.	Female.	White.	Black.	Indian.	Native.	Foreign.	Native.	Foreign.
Harvey, except	68	66	134	0	0	128	6	125	9
Newton	201	165	358	8	0	340	26	241	25
Haskell	26	31	57	0	0	51	6	55	2
Hodgeman	44	40	84	0	0	76	8	78	6
Jackson, except	72	89	154	1	6	158	3	161	0
Holton	18	24	40	2	0	39	3	42	0
Jefferson	96	98	192	2	0	189	5	192	2
Jewell	133	130	263	0	0	260	3	263	0
Johnson, except	144	148	289	3	0	271	21	281	11
Olathe	22	33	48	7	0	54	1	54	1
Kearny	46	30	76	0	0	69	7	69	7
Kingman	97	96	193	0	0	188	5	190	3
Kiowa	78	51	129	0	0	127	2	127	2
Labette, except	169	140	295	13	1	305	4	305	4
Parsons	100	105	187	18	0	194	11	192	13
Lane	26	34	60	0	0	58	2	58	2
Leavenworth, except	93	100	168	25	0	187	6	183	10
Leavenworth City	162	135	272	25	0	282	15	286	11
Lincoln	85	80	165	0	0	155	10	161	4
Linn	99	85	181	3	0	183	1	183	1
Logan	39	50	85	4	0	83	6	84	5
Lyon, except	94	91	185	0	0	180	5	182	3
Emporia	163	154	309	8	0	306	11	309	8
Marion	217	179	395	0	1	353	43	367	29
Marshall, except	144	150	294	0	0	275	19	282	12
Marysville	38	52	90	0	0	89	1	89	1
McPherson, except	92	87	179	0	0	170	9	168	11
McPherson	111	98	209	0	0	205	4	205	4
Meade	73	48	119	2	0	114	7	112	9
Miami, except	82	82	164	0	0	164	0	163	1
Osawatomie	44	44	82	6	0	85	3	86	2
Paola	24	30	49	5	0	51	3	54	0
Mitchell, except	68	54	122	0	0	120	2	121	1
Beloit	58	45	102	1	0	102	1	102	1
Montgomery, except	130	102	226	6	0	224	8	223	9
Independence	111	113	208	15	1	216	8	221	3
Coffeyville	154	148	272	30	0	295	7	295	7
Cherryvale	36	36	70	2	0	67	5	67	5
Caney	21	30	51	0	0	51	0	50	1
Morris, except	43	55	98	0	0	98	0	98	0
Council Grove	21	24	45	0	0	44	1	44	1
Morton	57	44	101	0	0	101	0	100	1
Nemaha	185	189	373	1	0	354	20	364	10
Neosho, except	110	102	212	0	0	210	2	211	1
Chanute	102	78	168	12	0	173	7	171	9
Ness	91	98	188	1	0	169	20	171	18
Norton	131	131	262	0	0	260	2	262	0
Osage	145	128	270	3	0	265	8	267	6
Osborne	89	99	188	0	0	185	3	186	2
Ottawa	85	73	157	1	0	157	1	158	0
Pawnee, except	38	32	70	0	0	65	5	65	5
Larned	66	56	120	2	0	122	0	120	2
Phillips	128	132	259	1	0	251	9	254	6
Pottawatomie	117	120	235	1	1	224	13	233	4
Pratt, except	39	50	89	0	0	85	4	87	2
Pratt City	58	54	106	6	0	110	2	112	0
Rawlins	85	87	172	0	0	170	2	172	0
Reno, except	124	128	252	0	0	247	5	244	8
Hutchinson	293	278	563	8	0	553	18	555	16
Republic	107	127	234	0	0	228	6	233	1
Rice, except	85	99	182	2	0	181	3	180	4
Lyons	38	43	81	0	0	67	14	68	13
Riley, except	65	57	122	0	0	117	5	120	2
Manhattan	114	95	200	9	0	201	8	205	4
Rooks	95	74	168	1	0	168	1	169	0
Rush	106	113	219	0	0	207	12	209	10
Russell	96	86	181	1	0	167	15	171	11
Saline, except	41	43	84	0	0	80	4	82	2
Salina	209	207	408	8	0	400	16	404	12

TABLE No. 48.—Births, by counties, by sex, color and parent nativity, for 1931—CONCLUDED.

COUNTIES AND CITIES.	Sex.		Color.			Nativity.			
						Father.		Mother.	
	Male.	Female.	White.	Black.	Indian.	Native.	Foreign.	Native.	Foreign.
Scott	67	52	119	0	0	113	6	114	5
Sedgwick, except	134	139	273	0	0	254	19	261	12
Wichita	1,032	1,021	1,962	89	2	1,974	79	1,992	61
Seward, except	31	28	59	0	0	59	0	55	4
Liberal	82	82	163	1	0	158	6	159	5
Shawnee, except	126	124	239	11	0	241	9	241	9
Topeka	580	547	1,025	100	2	1,044	83	1,067	60
Sheridan	67	77	144	0	0	129	15	132	12
Sherman, except	37	42	79	0	0	75	4	77	2
Goodland	56	71	127	0	0	124	3	123	4
Smith	117	116	233	0	0	230	3	232	1
Stafford	91	81	172	0	0	169	3	169	3
Stanton	22	20	42	0	0	42	0	42	0
Stevens	58	51	105	4	0	108	1	109	0
Sumner, except	156	152	305	3	0	299	9	298	10
Wellington	71	77	141	7	0	141	7	142	6
Thomas	75	86	161	0	0	159	2	159	2
Trego	56	55	111	0	0	91	20	90	21
Wabaunsee	80	75	152	3	0	154	1	152	3
Wallace	33	25	57	1	0	55	3	58	0
Washington	150	138	288	0	0	281	7	286	2
Wichita	25	12	37	0	0	36	1	36	1
Wilson, except	93	93	185	1	0	185	1	184	2
Fredonia	31	37	67	1	0	65	3	65	3
Neodesha	39	45	84	0	0	83	1	84	0
Woodson	89	79	167	0	1	165	3	166	2
Wyandotte, except	93	97	172	18	0	180	10	181	9
Kansas City	1,174	1,140	2,029	283	2	2,068	246	2,107	207

TABLE No. 49.—Population, births and birth rates per 1,000 population, by counties, for 1930 and 1931, (stillbirths not included).

Counties and Cities.	1930.			1931.		
	Population.	Births.	Birth rate.	Population.	Births.	Birth rate.
State totals	1,880,999	33,984	18.1	1,880,999	33,075	17.5
Allen, except	11,669	214	18.3	11,669	206	17.6
Iola	7,159	127	17.7	7,159	95	13.2
Humboldt	2,557	51	19.9	2,557	44	17.2
Anderson	13,359	188	14.1	13,359	186	13.9
Atchison, except	10,997	118	10.7	10,997	117	10.6
Atchison City	13,019	283	21.1	13,019	281	21.6
Barber	10,149	177	17.4	10,149	119	11.7
Barton, except	14,212	239	16.8	14,212	204	14.3
Great Bend	5,559	211	37.9	5,559	227	40.8
Bourbon, except	11,645	167	14.3	11,645	139	11.9
Fort Scott	10,746	238	22.1	10,746	223	20.7
Brown, except	13,213	172	13.0	13,213	126	9.5
Hiawatha	3,305	44	13.3	3,305	31	9.3
Horton	4,031	137	33.9	4,031	122	30.2
Butler, except	21,530	273	12.6	21,530	241	11.2
Augusta	4,033	83	20.5	4,033	84	20.8
El Dorado	10,305	243	23.5	10,305	239	23.2
Chase	6,944	128	18.4	6,944	106	15.3
Chautauqua	10,340	191	18.4	10,340	175	16.9
Cherokee, except	18,839	318	16.8	18,839	315	16.7
Galena	4,736	86	18.1	4,736	89	18.9
Baxter Springs	4,551	78	17.1	4,551	71	15.6
Columbus	3,237	51	15.7	3,237	57	17.6
Cheyenne	6,946	192	27.6	6,946	182	26.2
Clark	4,796	116	24.1	4,796	123	25.6
Clay, except	10,148	155	15.2	10,148	152	14.9
Clay Center	4,401	117	26.5	4,401	97	22.0
Cloud, except	12,215	230	18.8	12,215	202	16.5
Concordia	5,791	174	30.0	5,791	155	26.7
Coffey	13,597	209	15.3	13,597	209	15.6
Comanche	4,648	111	23.8	4,648	99	21.3
Cowley, except	17,509	217	12.3	17,509	222	12.7
Arkansas City	13,940	264	18.9	13,940	324	23.2
Winfield	9,410	230	24.4	9,410	224	23.8
Crawford, except	25,092	337	13.4	25,092	361	14.4
Pittsburg	18,051	218	12.1	18,051	236	13.0
Girard	2,433	34	13.9	2,433	30	12.3
Frontenac	2,134	24	11.2	2,134	30	14.0
Mulberry	1,595	36	22.5	1,595	29	18.1
Decatur	8,874	168	18.9	8,874	186	20.1
Dickinson, except	15,723	231	14.6	15,723	209	13.3
Abilene	5,624	106	18.8	5,624	131	23.3
Herington	4,522	72	15.9	4,522	74	16.3
Doniphan	13,946	226	16.2	13,946	221	15.8
Douglas, except	11,417	109	9.5	11,417	123	10.7
Lawrence	13,708	276	20.1	13,708	281	20.5
Edwards	7,289	123	16.8	7,289	95	13.0
Elk	9,206	112	12.1	9,206	122	13.2
Ellis, except	11,335	271	23.9	11,335	313	27.6
Hays	4,565	313	68.5	4,565	303	66.3
Ellsworth	10,123	181	17.8	10,123	198	19.5
Finney, except	4,829	97	20.0	4,829	71	14.7
Garden City	6,177	226	36.5	6,177	278	45.0
Ford, except	10,583	392	37.0	10,583	266	25.1
Dodge City	10,060	139	13.8	10,060	250	24.8
Franklin, except	12,442	214	17.1	12,442	166	13.3
Ottawa	9,562	180	18.8	9,562	169	17.7
Geary, except	6,919	120	17.3	6,919	124	17.9
Junction City	7,308	169	23.1	7,308	151	20.6
Gove	6,919	183	32.4	6,919	179	31.7
Graham	7,768	214	27.5	7,768	202	26.0
Grant	3,092	77	24.9	3,092	50	16.2
Gray	6,213	157	25.2	6,213	170	27.3
Greeley	1,709	21	12.2	1,709	28	16.4
Greenwood, except	15,616	237	15.1	15,616	225	14.4
Eureka	3,700	80	21.6	3,700	74	20.0
Hamilton	3,325	62	18.6	3,325	101	30.4
Harper, except	9,903	187	18.8	9,903	169	17.0
Anthony	2,914	140	48.0	2,914	131	44.9

TABLE No. 49.—Population, births and birth rates per 1,000 population, by counties, for 1930 and 1931, (stillbirths not included)—CONTINUED.

COUNTIES AND CITIES.	1930.			1931.		
	Population.	Births.	Birth rate.	Population.	Births.	Birth rate.
Harvey, except	11,085	136	12.2	11,085	134	10.3
Newton	11,031	399	36.1	11,031	366	33.2
Haskell	2,805	59	21.0	2,805	57	20.3
Hodgeman	4,156	86	20.6	4,156	84	20.2
Jackson, except	12,073	161	13.3	12,073	161	13.3
Holton	2,705	34	12.5	2,705	42	15.5
Jefferson	14,009	195	13.9	14,009	194	13.8
Jewell	14,458	251	17.3	14,458	263	18.2
Johnson, except	23,470	295	12.5	23,470	292	12.4
Olathe	3,652	43	11.7	3,652	55	15.0
Kearney	3,195	79	24.7	3,195	76	23.8
Kingman	11,732	224	19.1	11,732	193	16.4
Kiowa	6,034	115	19.0	6,034	129	21.4
Labette, except	16,415	284	17.3	16,415	309	18.8
Parsons	14,852	205	13.8	14,852	205	13.8
Lane	3,371	55	16.3	3,371	60	17.8
Leavenworth, except	24,931	237	9.5	24,931	193	7.7
Leavenworth City	17,449	299	17.1	17,449	297	17.0
Lincoln	9,606	204	21.2	9,606	165	17.2
Linn	13,525	199	14.7	13,525	184	13.6
Logan	4,136	79	19.1	4,136	89	21.5
Lyon, except	15,486	231	14.9	15,486	185	11.9
Emporia	13,687	341	24.9	13,687	317	23.1
Marion	20,723	410	19.7	20,723	396	19.1
Marshall, except	19,017	329	17.3	19,017	294	15.4
Marysville	4,031	87	21.5	4,031	90	23.3
McPherson, except	17,452	173	9.9	17,452	179	10.2
McPherson City	6,138	198	32.2	6,138	209	34.0
Meade	6,858	93	13.5	6,858	121	17.6
Miami, except	13,042	191	14.6	13,042	164	12.6
Osawatomie	4,440	82	18.4	4,440	88	19.8
Paola	3,759	56	14.8	3,759	54	14.3
Mitchell, except	9,274	103	11.1	9,274	122	13.1
Beloit	3,485	68	19.5	3,485	103	29.5
Montgomery, except	15,401	278	18.0	15,401	232	15.0
Independence	12,773	237	18.5	12,773	224	17.5
Coffeyville	16,188	342	21.1	16,188	302	18.6
Cherryvale	4,242	68	16.0	4,242	72	16.9
Caney	2,792	45	16.1	2,792	51	18.2
Morris, except	8,899	96	10.7	8,899	98	11.0
Council Grove	2,851	51	17.8	2,851	45	15.8
Morton	4,092	107	26.1	4,092	101	24.7
Nemaha	18,337	365	19.9	18,337	374	20.4
Neosho, except	13,077	173	13.2	13,077	212	16.2
Chanute	9,651	194	20.1	9,651	180	18.6
Ness	8,353	206	24.6	8,353	189	22.6
Norton	11,695	227	19.4	11,695	262	22.4
Osage	17,502	256	14.6	17,502	273	15.6
Osborne	11,551	197	17.0	11,551	188	16.3
Ottawa	9,824	170	17.3	9,824	158	16.1
Pawnee, except	6,977	75	10.7	6,977	70	10.0
Larned	3,524	119	33.7	3,524	122	34.6
Phillips	12,139	169	13.9	12,139	260	21.4
Pottawatomie	15,858	263	16.5	15,858	237	14.9
Pratt, except	6,953	89	12.8	6,953	89	12.8
Pratt City	6,322	178	28.1	6,322	112	17.7
Rawlins	7,365	160	21.7	7,365	172	23.3
Reno, except	20,671	239	11.5	20,671	252	12.2
Hutchinson	27,080	644	23.7	27,080	571	21.1
Republic	14,741	259	17.5	14,741	234	15.9
Rice, except	10,134	187	18.4	10,134	184	18.1
Lyons	2,937	65	22.1	2,937	81	27.5
Riley, except	9,758	108	11.0	9,758	125	12.5
Manhattan	10,101	205	20.2	10,101	209	20.7
Rooks	9,534	193	20.2	9,534	169	17.7
Rush	8,887	173	19.4	8,887	219	24.6
Russell	11,044	217	19.6	11,044	182	16.5
Saline, except	9,171	106	11.5	9,171	84	9.1
Salina	20,156	468	23.2	20,156	416	20.6
Scott	3,976	119	29.9	3,976	119	29.9

TABLE No. 49.—Population, births and birth rates per 1,000 population, by counties, for 1930 and 1931, (stillbirths not included)—CONCLUDED.

COUNTIES AND CITIES.	1930.			1931.		
	Population.	Births.	Birth rate.	Population.	Births.	Birth rate.
Sedgwick, except	25,180	325	12.9	25,180	273	10.8
Wichita	111,039	2,284	20.5	111,039	2,053	18.5
Seward, except	2,781	39	14.0	2,781	59	21.2
Liberal	5,291	155	29.2	5,291	164	31.0
Shawnee, except	21,804	238	10.9	21,804	250	11.4
Topeka	64,005	1,232	19.2	64,005	1,127	17.6
Sheridan	6,033	132	21.8	6,033	144	23.8
Sherman, except	3,778	70	18.5	3,778	79	20.9
Goodland	3,622	69	19.0	3,622	127	35.0
Smith	13,518	247	18.2	13,518	233	17.2
Stafford	11,567	152	13.1	11,567	172	14.8
Stanton	2,150	36	16.7	2,150	42	19.5
Stevens	4,648	78	16.7	4,648	109	23.4
Sumner, except	21,555	328	15.2	21,555	308	14.3
Wellington	7,402	168	22.6	7,402	148	19.9
Thomas	7,307	163	22.3	7,307	161	22.0
Trego	6,466	111	17.1	6,466	111	17.1
Wabaunsee	10,840	176	16.2	10,840	155	14.3
Wallace	2,882	62	21.5	2,882	58	20.1
Washington	17,118	246	14.3	17,118	288	16.8
Wichita	2,579	17	6.5	2,579	37	14.2
Wilson, except	12,046	175	14.5	12,046	186	15.4
Fredonia	3,439	58	16.8	3,439	68	19.8
Neodesha	3,160	85	26.8	3,160	84	26.6
Woodson	8,498	119	14.0	8,498	168	19.7
Wyandotte, except	19,337	231	11.9	19,337	190	9.8
Kansas City	122,327	2,365	19.3	122,327	2,314	18.9

TABLE No. 50.—Marriages and wedding rates per 2,000 population, by counties, 1931, 1930, 1929, 1928, 1927.

Counties.	1931.			1930.			1929.			1928.			1927.		
	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.
State totals	1,880,999	18,311	19.4	1,880,999	19,846	21.1	1,852,114	21,041	22.6	1,838,425	19,679	21.4	1,837,514	19,800	21.5
Allen	21,385	216	20.2	21,385	246	23.0	21,479	291	27.0	21,774	258	23.6	22,892	259	22.6
Anderson	13,359	101	15.1	13,359	133	19.9	12,557	121	19.2	12,890	114	17.6	12,284	127	20.6
Atchison	24,016	218	18.1	24,016	251	20.9	26,567	308	23.1	25,818	296	23.0	25,468	297	23.3
Barber	10,149	79	15.6	10,149	94	18.5	9,627	104	21.6	9,490	77	16.2	9,186	82	17.8
Barton	19,771	186	18.6	19,771	161	16.2	19,298	199	20.7	19,584	196	20.0	19,602	189	19.2
Bourbon	22,391	226	20.2	22,391	209	18.6	25,017	239	19.1	25,120	248	19.6	25,027	274	21.7
Brown	20,549	217	21.1	20,549	234	22.7	21,185	272	25.6	21,163	216	20.4	21,132	222	21.0
Butler	35,868	266	14.8	35,868	306	17.1	35,238	332	18.8	36,126	262	14.4	36,205	306	16.9
Chase	6,944	87	25.0	6,944	102	29.3	6,334	106	33.4	6,298	96	30.4	6,394	111	34.6
Chautauqua	10,340	96	18.6	10,340	121	23.4	10,040	106	21.1	10,345	111	21.4	10,180	98	20.2
Cherokee	31,363	375	23.9	31,363	432	27.5	35,903	472	26.3	35,178	445	25.2	35,118	596	33.8
Cheyenne	6,946	109	31.3	6,946	61	17.5	6,424	60	18.3	6,267	37	11.8	6,089	52	17.0
Clark	4,796	27	11.2	4,796	35	14.5	4,513	46	20.3	4,612	42	18.2	4,702	34	14.4
Clay	14,549	114	15.7	14,549	142	19.5	15,268	154	20.1	15,104	130	17.2	15,430	137	17.7
Cloud	18,006	150	16.7	18,006	183	20.3	17,105	178	20.8	17,095	179	20.8	17,208	152	17.6
Coffey	13,597	62	9.1	13,597	63	9.2	14,006	59	8.4	14,626	73	9.8	14,992	87	11.6
Comanche	4,648	44	18.9	4,648	41	17.6	5,037	47	18.6	5,101	45	17.6	5,079	34	13.3
Cowley	40,859	399	19.6	40,859	462	22.6	38,361	519	27.0	40,896	506	24.6	41,204	550	26.7
Crawford	49,305	319	13.5	49,305	368	14.9	59,176	319	13.2	61,199	382	12.4	61,884	482	15.5
Decatur	8,874	137	30.8	8,874	133	29.9	8,235	119	28.9	8,192	117	28.4	8,063	102	25.3
Dickinson	25,869	174	13.4	25,869	181	13.9	25,657	209	16.2	25,071	178	14.2	25,967	180	13.8
Doniphan	13,946	428	61.4	13,946	398	57.1	14,510	399	54.9	14,327	315	43.8	14,619	286	39.0
Douglas	25,125	383	30.5	25,125	440	35.0	25,422	463	36.4	25,622	438	34.1	25,109	517	41.0
Edwards	7,289	65	17.8	7,289	67	18.3	6,696	84	25.0	6,749	64	18.9	6,706	70	20.8
Elk	9,206	68	14.8	9,206	67	14.5	9,167	54	11.7	9,271	67	14.4	9,175	62	13.5
Ellis	15,900	172	21.6	15,900	179	22.5	14,785	169	22.8	15,627	138	17.6	15,941	131	16.4
Ellsworth	10,123	65	12.8	10,123	88	8.7	10,025	91	18.1	10,230	75	14.6	10,114	78	15.5
Finney	11,006	155	28.2	11,006	166	30.1	8,766	154	35.1	8,683	108	24.8	8,093	98	24.2
Ford	20,643	236	22.8	20,643	253	24.5	18,235	221	24.2	17,848	209	23.4	17,494	224	25.6
Franklin	22,004	177	16.1	22,004	203	18.4	22,566	203	17.9	22,210	216	19.4	22,378	180	16.9

TABLE No. 50.—Marriages and wedding rates per 2,000 population, by counties, 1931, 1930, 1929, 1928, 1927—CONTINUED.

COUNTIES.	1931.			1930.			1929.			1928.			1927.		
	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.
Geary	14,227	189	26.6	14,227	184	25.8	14,024	185	27.8	13,796	177	25.6	12,923	174	26.8
Gove	5,643	35	12.4	5,643	19	6.7	5,534	29	10.4	5,481	26	9.4	5,467	19	6.9
Graham	7,768	60	15.4	7,768	54	13.9	7,470	64	17.1	7,297	56	15.3	7,112	39	10.9
Grant	3,092	27	17.5	3,092	29	18.7	2,144	24	22.3	1,804	17	18.8	1,824	11	12.1
Gray	6,213	49	15.7	6,213	76	24.4	5,393	56	20.7	5,282	63	23.8	5,134	44	17.1
Greeley	1,709	33	38.6	1,709	22	25.7	1,424	11	15.4	1,329	10	15.0	1,436	14	19.5
Greenwood	19,316	97	10.0	19,316	113	14.4	18,725	113	12.0	20,034	97	9.6	20,613	127	12.3
Hamilton	3,325	102	61.3	3,325	78	46.9	2,349	52	44.2	2,378	41	34.4	2,378	40	33.6
Harper	12,817	113	17.6	12,817	127	19.8	12,517	130	20.7	12,911	149	23.0	12,997	140	21.5
Harvey	22,116	435	39.3	22,116	494	44.6	20,703	522	50.4	20,319	437	43.0	20,116	414	41.0
Haskell	2,805	21	14.9	2,805	27	19.2	2,581	31	24.0	2,344	24	20.0	2,297	15	13.4
Hodgeman	4,156	33	15.9	4,156	29	13.9	3,803	27	14.1	3,767	19	10.1	3,719	18	9.8
Jackson	14,778	138	18.7	14,778	134	22.2	15,079	154	20.4	15,060	160	21.2	15,014	137	18.2
Jefferson	14,009	121	17.3	14,009	122	17.4	13,854	117	16.8	13,828	101	14.6	13,732	102	14.8
Jewell	14,458	121	16.7	14,458	149	20.6	14,885	150	20.1	14,789	130	17.4	14,772	131	17.7
Johnson	27,122	1,316	97.0	27,122	1,248	92.0	26,024	1,223	93.9	24,004	1,078	89.8	24,069	887	73.7
Kearny	3,195	33	20.6	3,195	37	23.1	2,758	26	19.5	2,667	28	20.8	2,655	26	19.4
Kingman	11,732	112	19.1	11,732	121	20.6	11,386	127	22.3	11,346	111	19.4	11,886	124	20.8
Kiowa	6,034	48	15.9	6,034	49	17.2	6,038	57	18.8	6,072	55	18.1	6,210	44	14.2
Labette	31,267	217	13.9	31,267	261	16.6	32,114	260	16.1	32,913	283	17.1	33,254	276	16.5
Lane	3,371	23	13.6	3,371	20	11.8	3,101	19	12.2	2,883	12	8.2	2,889	16	11.0
Leavenworth	42,380	498	23.5	42,380	471	22.2	41,715	477	22.8	41,527	521	25.0	41,715	580	27.9
Lincoln	9,606	64	13.3	9,606	55	11.4	9,465	59	12.4	9,550	68	14.2	9,398	56	11.9
Linn	13,525	71	10.5	13,525	71	10.4	13,154	68	8.9	13,084	75	11.2	13,114	76	11.5
Logan	4,136	20	9.7	4,136	15	7.2	3,690	17	9.2	3,464	12	6.8	3,497	13	7.4
Lyon	29,173	172	11.7	29,173	239	30.8	27,935	245	17.5	28,303	262	18.4	27,206	266	19.5
Marion	20,723	123	11.9	20,723	136	15.0	21,462	152	14.1	21,858	124	11.2	21,262	166	15.6
Marshall	23,048	246	21.3	23,048	217	20.6	23,075	247	21.4	22,924	223	19.4	22,990	264	22.5
McPherson	23,590	172	14.6	23,590	210	24.0	21,102	205	19.4	20,912	154	14.6	20,570	157	15.2
Meade	6,858	52	15.2	6,858	62	18.1	6,059	58	19.1	5,982	57	19.0	5,935	52	17.4

TABLE No. 50.—Marriages and wedding rates per 2,000 population, by counties, 1931, 1930, 1929, 1928, 1927—CONTINUED.

COUNTIES.	1931.			1930.			1929.			1928.			1927.		
	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.
Miami	21,241	144	13.6	21,241	192	18.1	21,263	184	17.3	20,154	146	14.4	20,131	169	16.7
Mitchell	12,759	110	17.2	12,759	101	15.8	12,190	142	23.2	12,000	116	19.2	11,710	155	26.4
Montgomery	51,396	444	17.3	51,396	558	21.7	55,394	629	22.7	55,435	606	21.8	57,438	662	23.0
Morris	11,750	92	15.6	11,750	41	6.9	11,590	88	15.1	12,045	77	12.6	11,882	86	14.4
Morton	4,092	38	18.6	4,092	39	19.0	3,429	42	24.4	3,495	23	13.0	13,509	28	15.8
Nemaha	18,337	136	14.8	18,337	153	16.6	18,103	153	16.9	17,997	161	17.8	18,073	160	17.7
Neosho	22,728	144	12.8	22,728	166	14.6	22,720	162	14.2	22,160	179	16.0	22,298	154	13.8
Ness	8,353	53	12.7	8,353	54	12.9	7,726	50	12.9	7,557	65	17.2	7,415	41	11.0
Norton	11,695	186	31.8	11,695	187	31.9	11,113	187	33.6	10,491	152	28.8	10,490	155	29.5
Osage	17,502	143	16.3	17,502	150	17.1	20,291	110	10.8	20,229	130	12.8	20,202	139	13.7
Osborne	11,551	94	16.3	11,551	100	17.3	11,714	108	18.4	11,546	96	16.6	11,336	111	19.4
Ottawa	9,824	76	15.5	9,824	68	13.8	9,780	70	14.3	9,718	83	17.0	9,647	81	16.6
Pawnee	10,501	94	26.9	10,501	84	16.0	9,047	83	18.3	9,157	86	18.6	9,057	96	21.1
Phillips	12,139	126	20.7	12,139	129	21.2	11,253	133	23.6	11,249	117	20.8	11,568	116	20.0
Pottawatomie	15,858	68	8.6	15,858	52	6.5	15,504	48	7.4	15,390	50	6.4	15,107	46	6.0
Pratt	13,275	93	14.0	13,275	115	17.3	12,639	150	23.7	12,497	146	23.2	12,486	164	26.3
Rawlins	7,365	67	18.2	7,365	73	19.8	6,915	69	19.9	6,864	68	19.8	6,744	57	16.9
Reno	47,751	397	16.6	47,751	465	19.4	48,471	503	20.7	49,056	476	19.4	47,670	492	20.6
Republic	14,741	194	26.3	14,741	212	28.7	15,184	209	27.5	15,305	205	26.6	15,161	154	20.2
Rice	13,071	122	18.7	13,071	143	21.8	13,413	139	20.7	13,720	117	17.0	14,068	128	18.1
Riley	18,859	197	19.8	19,859	239	24.1	20,390	257	25.2	20,198	242	23.8	20,057	210	20.8
Rooks	9,534	59	12.4	9,534	77	16.1	9,019	69	15.3	9,087	74	16.2	10,091	62	12.2
Rush	8,887	50	11.2	8,887	43	9.6	8,668	70	16.1	8,484	60	14.1	8,635	56	12.9
Russell	11,044	76	13.8	11,044	79	14.3	10,539	89	16.8	10,704	75	14.0	10,680	66	12.2
Saline	29,327	331	22.6	29,327	323	22.0	27,082	372	27.4	26,437	324	14.4	25,445	320	25.1
Scott	3,976	52	26.1	3,976	55	27.6	3,559	54	30.3	3,140	50	31.8	3,183	35	21.9
Sedgwick	136,219	1,072	15.7	136,219	1,429	20.9	130,543	1,646	25.2	123,090	1,440	23.2	120,970	1,386	22.9
Seward	8,072	158	39.1	8,072	136	33.6	6,586	171	51.9	6,089	118	38.6	6,191	115	37.1
Shawnee	85,809	646	15.0	85,809	757	17.6	81,112	857	21.1	75,959	891	23.4	79,585	873	21.9
Sheridan	6,033	40	13.2	6,033	46	15.2	5,794	48	16.5	5,885	56	19.0	5,871	26	8.8

TABLE No. 50.—Marriages and wedding rates per 2,000 population, by counties, 1931, 1930, 1929, 1928, 1927—Concluded.

Counties.	1931.			1930.			1929.			1928.			1927.		
	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.	Population.	Marriages.	Marriage rate per 2,000.
Sherman	7,400	117	31.6	7,400	88	23.7	6,743	97	28.7	6,619	68	20.4	6,741	66	19.5
Smith	13,518	176	26.0	13,518	186	27.5	13,101	189	28.8	13,014	198	30.4	12,970	176	27.1
Stafford	11,567	70	12.1	11,567	95	16.4	10,738	73	13.5	10,775	86	15.9	10,696	92	17.2
Stanton	2,150	14	13.0	2,150	13	12.1	1,611	15	18.6	1,380	10	14.4	1,315	12	18.2
Stevens	4,648	41	17.6	4,648	54	23.2	4,059	43	21.1	3,874	20	10.2	3,672	19	10.2
Sumner	28,957	392	27.1	28,957	347	23.9	29,053	454	31.2	29,633	295	26.6	28,857	403	27.9
Thomas	7,307	103	28.2	7,307	110	30.1	7,115	93	26.1	6,795	76	22.2	6,655	69	20.6
Trego	6,466	85	26.3	6,466	110	34.0	6,306	89	28.2	6,168	107	34.6	5,832	84	29.7
Wabaunsee	10,840	39	7.2	10,840	54	9.9	10,294	58	11.2	10,357	53	10.2	10,374	67	12.9
Wallace	2,882	50	34.6	2,882	40	27.7	2,514	24	19.0	2,541	23	18.0	2,770	19	13.7
Washington	17,118	134	15.6	17,118	103	12.0	16,867	104	12.3	16,324	114	13.8	16,795	123	14.6
Wichita	2,597	23	17.7	2,597	16	12.4	2,109	14	13.2	2,010	15	14.8	2,046	16	15.6
Wilson	18,645	106	11.4	18,645	120	12.8	20,036	141	14.1	20,343	169	16.6	20,222	180	17.8
Woodson	8,498	59	13.8	8,498	77	18.1	8,666	77	17.7	8,590	76	17.6	8,709	94	21.5
Wyandotte	141,664	1,308	18.5	141,664	1,479	20.8	134,994	1,603	23.7	134,440	1,632	24.2	133,420	1,595	23.9

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